New Product Preannouncement: A Model of Situational Factors, Strategic Behaviours, and Effectiveness

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To My Father

and

In Memory of My Mother

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Acknowledgments

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Abstract

New product preannouncement refers to a firm's communication of new product-related messages to the market before launch. There is empirical evidence to show that new product preannouncement has become an essential part of prelaunch activities. The purpose of this research is to bridge a gap in our understanding of the nature of new product preannouncing behaviour. Specifically, the research aims to answer two related research questions: (1) What situational factors influence the firm's adoption of different new product preannouncing behaviours? (2) How can the performance of various preannouncements be measured and linked to the antecedents?

A comprehensive model is proposed that depicts the links among the situational factors, strategic behaviours, and effectiveness of new product preannouncement. Data to be used for testing the model were collected by a questionnaire survey. The sampling frame included a wide range of industries, such as consumer durable, industrial goods, and high-tech products, in which new product preannouncing is prevalent and salient. Hypothesised links depicted in the research model were tested using structural equation modelling.

The findings show that the characteristics of the brand/product, firm, and market affect new product preannouncing behaviours, which, in turn, influence effectiveness of new product preannouncement. A firm's characteristics directly influence preannouncing effectiveness as well. In short, a firm is more likely to preannounce a new product with clear and truthful messages if the product is affiliated with a strong brand. However, if the new product is a radical innovation, the firm would tend to convey less uniform messages. Large firms (in terms of the number of employees) preannounce their products earlier but less frequently, with more message cues in ambiguous and untruthful forms. Contrarily, market leading firms (in terms of market share) tend to preannounce new products more frequently and use more message cues. Market-oriented firms are more likely to deliver uniform messages with sufficient cues in their preannouncements.

Firms facing high network externalities are more inclined to conduct early preannouncements with abundant message content. In hostile environments, firms tend to avoid early preannouncements, while engaging in frequent preannouncements loaded with more message cues. Firms in technologically turbulent markets are more likely to have fewer messages contained in the preannouncements.

Uniform messages enhance effectiveness of new product preannouncement. Likewise, frequent preannouncing also results in higher effectiveness. Another way to increase the effectiveness is to conduct an early preannouncement. Large firms tend to enjoy higher preannouncing effectiveness, ceteris paribus. Market leading or market-orientated firms also have a greater likelihood of achieving higher preannouncing effectiveness. Furthermore, the more favourably the media cover a firm's new product preannouncement, the more likely the preannouncements will be effective.

This research reflects the fact that new product preannouncing strategies vary depending on the characteristics of product, firm, and market. The findings lead to an integrative model that can guide the management of new preannouncement to achieve higher effectiveness. Developing appropriate preannouncing strategies depends on the simultaneous consideration of situational factors and the impacts of different strategies on preannouncing effectiveness. In a sense, this research represents a further step toward dealing with a managerial challenge--to preannounce the right messages to the right audiences through the right communication channels at the right time.

Chapter 1

Introduction

1.1 Background

The phenomenon of new product preannouncement appears prevalent in the business world nowadays. Evidence shows that new product preannouncement has become an essential part of prelaunch activities in the process of new product development (Rabino and Moore 1989). New product preannouncement is one of the strategies firms can employ to ensure the successful marketing of new products in increasingly competitive environments (Brockhoff and Rao 1993). In a study across a range of U.S. industries including consumer durable, pharmaceutical, textiles, computers, telecommunication, etc. (Eliashberg and Robertson 1988), 51% of the surveyed firms preannounced their new products or services.

New product preannouncement is a deliberate communication by which a firm conveys the messages pertaining to its new products or services to other individuals in the market before launch (Eliashberg and Robertson 1988; Rabino and Moore 1989). In the domain of product management, new product preannouncement refers to prelaunch communication efforts to disseminate the new product-related information to all the relevant audiences in the market. In a sense, the preannouncements represent "psychological or virtual market introductions of new products before their physical availability" (Brockhoff and Rao 1993). The preannouncing behaviours mainly involve managerial actions dealing with preannounced messages ('what"), communication channels ("where"), and preannouncing timing ("when") (Eliashberg

and Robertson 1988; Lilly and Walters 1997; Rabino and Moore 1989; Robertson, Eliashberg, and Rymon 1995).

Firms in high technology industries frequently engage in preannouncing their new products (Rabino and Moore 1989; Robertson 1993). For instance, Microsoft Corporation actively embarked on a variety of advertising and publicity events around the world well before the actual launch of its Windows 95. The initial success of Windows 95 can be attributed to the incredible media hype those prelaunch programmes created (Advertising Age 1995). Another example is that, in November 1996, Microsoft and Intel held a press conference to preannounce their version of network computer, one day before Sun introduced its new network computer. The preannouncement of the two firms' network computer was considered an aggressive preemptive strike in the computer industry (Time 1996). By releasing the messages about its upcoming product iMac, Apple Computer Inc. received orders for more than 100,000 of the computers from the retailers before it actually launched the product on 15 August, 1998 (Business Week 1998).

New product preannouncing behaviour is also salient in the automobile industry. Nissan Motor Co. preannounced its new models of Sentra sedan and compact sport utility more than two years prior to their availability in the U.S. market (Business Week 1997). In the aircraft industry, Boeing preannounced its 787 to forestall the 650 passenger aircraft market from its European rival Airbus (Business Week 1993). Perhaps the most conspicuous case of new product preannouncement recently comes from the motion picture industry. After more than sixteen years of

preannouncement, the movie Star Wars Episode I--The Phantom Menace created hectic hype across the world before its opening on 19 May, 1999. Its successful prelaunch marketing communications resulted in a total of $28.5 million of opening-day ticket sales, breaking the single-day record of $26.1 million set in 1997 by The Lost World: Jurassic Park (Time 1999).

1.2 Research Streams in New Product Preannouncement

Despite the importance and salience of new product preannouncement, there have only been a few studies in the past that have investigated this phenomenon. Studies in this area can be classified into two research streams: from the perspective of the preannouncement sender (communication source) or from the perspective of the preannouncement receiver (communication destination). Most of the studies in the first research stream focus on the firm's decision-making of preannouncing new products. In contrast, studies to the second research stream mainly emphasise the receiver's processing of preannounced messages or reaction to the preannouncement.

An exploratory study undertaken by Eliashberg and Robertson (1988) represents pioneering research in the first stream. The latter study identifies the circumstances under which firms seek to preannounce their new products by examining the benefits and risks associated with new product preannouncement. On the other hand, Rabino and Moore (1989) conducted a qualitative study on the management of new product announcements in the computer industry. They recognise that new product preannouncement plays an important role in the new

product introduction process and confirm that the differences in preannouncing behaviours exist across products and firms. Lilly and Walters (1997) proposed a conceptual model that links the timing of new product preannouncements and its influential factors. Nevertheless, their propositions are not yet tested due to the lack of empirical data.

Robertson, Eliashberg, and Rymon (1995) studied new product preannouncement in a competitive domain. The focus of their research is on understanding how competitors react to the preannouncements. Contrarily, Lilly and Krishnan (1996) proposed a conceptual framework for consumer responses to new product preannouncements. The framework describes the underlying mechanism of new product preannouncement that leads to consumers' purchase delay. Maceau, Eliashberg, and Rao (1999) investigated the impact of new product preannouncement on consumer behaviour at the aggregate level. In this study, the diffusion of preannounced products is modelled through an analysis of "pent-up demand," which refers to the cumulative consumer demand for the products created by preannouncing before launch.

1.3 Objectives of the Research

The extant literature recognises the significance of new product preannouncement and explores the occurrence, process, or impact of the preannouncement. Rarely has any study discussed new product preannouncement in a comprehensive fashion, in terms of addressing different strategic behaviours of new

product preannouncement, the circumstances under which such behaviours take place, and the performance of the behaviours. This research is intended to bridge a gap in our understanding of the nature of new product preannouncement. Specifically, it aims to find out how and why managerial actions for preannouncing new products vary and what are the outcomes given different actions taken.

The objectives of this research are: (1) to investigate various aspects of new product preannouncing behaviours, (2) to examine the influences of situational factors on firms' new product preannouncing behaviours, and (3) to link the effectiveness of new product preannouncement to the antecedents. In this research, new product preannouncement is studied under circumstances where firms manage to conduct new product preannouncements after they have decided to preannounce the products. The research theme is on establishing an integrative model that encompasses the decision-making and performance of different new product preannouncing behaviours.

1.4 Overview of the Current Research

This research is devoted to answer two related research questions: (1) What situational factors influence the firm's adoption of different new product preannouncing behaviours? (2) How can the performance of various preannouncements be measured and linked to the antecedents? A conceptual framework is proposed to depict the links among the situational factors, strategic behaviours, and effectiveness of new product preannouncement. Stemming from the process school of communication (Fiske 1990), this framework regards

preannouncement as the transmission of messages and takes the viewpoint of the message sender. Non-behavioural, instead of behavioural, messages sent by preannouncing firms are of interest because non-behavioural message communication plays a major role in the preannouncing context (cf. Eliahsberg and Robertson 1988; Lilly and Walters 1997; Robertson, Eliashberg, and Rymon 1995).[1]

According to the conceptual framework, hypotheses concerning the detailed relationships among respective constructs are developed. The constructs representing new product preannouncing behaviours include preannouncing timing; visibility and preannouncing frequency (communication channel); message clarity, message uniformity, message truthfulness, and message content (message strategy). As for situational factors, brand strength and product newness are the constructs of brand/product characteristics; firm size, product category strength, and market orientation the constructs of firm characteristics; network externality, competitive hostility, market turbulence, and technological turbulence the constructs of market characteristics. These hypotheses are further translated into a path diagram, which represents the hypothesised model. The hypothesised model proposes that the strategic behaviours of new product preannouncement affect preannouncing effectiveness, and that they are influenced by the characteristics of brand/product, firm, and market. Brand/product and firm characteristics have direct impacts on

[1] Behavioural messages herein refer to observable market actions with respect to the developement or launch of a future product, such as building a plant or adding a new capacity (cf. Porter 1980; Smith and Grimm 1991). In contrast, non-behavioural messages indicate the preannounced information concerning new product-related activities (cf. Moore 1992; Heil and Robertson 1991). Non-behavioural messages may take many forms, such as oral, written, image, etc.

preannouncing effectiveness as well. Consequently, the research is designed to collect and analyse data for testing the proposed hypotheses.

The unit of analysis in this study is the individual new product, rather than a firm or a business unit. Data were collected from key informants for each construct under study. The use of key informant methods is in conjunction with survey data-collection procedures. The key informants in this study include managers who were responsible for, or highly involved in, introducing new products. The managers were asked to recall one new product their firm preannounced recently and answer the relevant questions. A product is defined as new as long as it is new to the firm.

The survey instrument was developed to fit the study setting based on literature search and a pilot study. A series of pretests was conducted to further refine measures and methods for improving response rates by personal interview and subsequently through mail. The sampling frame includes a wide range of industries such as automobiles, computers, electronics, pharmaceutical, precision instruments, and telecommunication, in which new product preannouncing phenomenon is prevalent and salient. A stratified random sample of 1,000 firms was chosen out of the list of OneSource database, which covers firms operating within the United Kingdom. Telephone pre-notification and two mailings were used to secure responses (Yu and Cooper 1983). Of the returned questionnaires, one hundred and ninety seven turned out to be usable, resulting in a 19.7% usable response rate.

The construct validation and hypothesis testing were conducted using LISREL 8.20, by following the two-step approach suggested by Anderson and Gerbing (1988).

First, the multi-item measurement scales were purified through a series of confirmatory factor analyses to ensure unidimensionality, convergent validity, and discriminant validity. Two constructs, visibility and market turbulence, were eliminated after the construct validation due to low reliabilities. The hypothesised model was accordingly modified into an operational model for hypothesis testing. Next, the hypotheses were tested through structural equation modelling with the maximum likelihood estimation method. The best-fitting model was determined by a combined use of model comparison and model development. The operational model was first compared with a null model and four competing models by way of a nested models analysis (cf. Anderson and Gerbing 1988). The evaluation of the models was based on chi-square statistics as well as several goodness-of-fit indices. As a result, the operational model survived the model comparison, and then it was respecified through modifications in accordance with the underlying theory.

Overall, the final results confirmed the proposed model. The findings reflect the fact that the behavioural differences in preannouncing new products exist across products, firms, and markets. It is indicated that the effectiveness of new product preannouncement can be enhanced by way of escalating communication efforts, such as conducting earlier preannouncements, increasing preannouncing frequency, and conveying consistent messages. Larger, leading, or market-oriented firms are more likely to achieve higher preannouncing effectiveness, ceteris paribus. In conclusion, this research represents a further step toward dealing with a managerial challenge--to

preannounce the right messages to the right audiences through the right communication channels at the right time.

1.5 Organisation of the Thesis

The remaining chapters of this thesis are organised as follows. Chapter 2 reviews the extant literature in new product preannouncement and related areas. The literature review leads to a conceptual framework for new product preannouncing behaviours. Chapter 3 proposes the research hypotheses of this study based on the conceptual framework. The rationale underlying the hypotheses is thoroughly discussed and the hypothesised relationships among the constructs are translated into a model for testing. Chapter 4 addresses the methodological issues with respect to research design, construct operationalisation, and data collection. The procedure for collecting data for future hypothesis testing is explained in detail.

Chapter 5 and Chapter 6 describe the processes and methods involved in analysing the collected data. Specifically, Chapter 5 discusses sample characteristics and preliminary data analysis, including basic data processing and construct validation. Chapter 6 deals with descriptive findings and hypothesis testing. An empirical model is finalised and expressed with reference to the research hypotheses. Chapter 7 further discusses the research findings, gaining insights into the phenomenon of interest. The rationale underlying both the confirmed or contradictory relationships is also explained. Finally, Chapter 8 contains the conclusions drawn from this research. It summarises the research findings, discusses the research

implications for theory and practice, addresses the research limitations, and proposes the directions for future research.

Chapter 2

Literature Review

2.1 Introduction

This chapter reviews the literature in new product preannouncement and related areas. The literature review provides a basis for developing a conceptual framework for analysing new product preannouncing behaviour. Section 2.2 starts with an introduction to the nature of new product preannouncement from a perspective of communication. The theme of this section is on the dual role of new product preannouncement in the process of new product development: as prelaunch marketing communications and as one form of competitive market signalling.

Section 2.3 discusses the circumstances under which new product preannouncement is likely to take place. This section mainly explores the reasons that firms engage in preannouncing new products rather than to maintain secrecy. Subsequently, Section 2.4 discusses managerial decisions involved in new product preannouncement. Target audiences and strategic objectives of new product preannouncement are addressed in Section 2.5. Section 2.6 briefly discusses the execution of new product preannouncement. Following the literature review, a conceptual framework is proposed in Section 2.7 to depict the relationships among various new product preannouncing behaviours, the factors influencing these behaviours, and effectiveness of new product preannouncement. Section 2.8 summarises the discussion in this chapter.

2.2 Nature of New Product Preannouncement

New product preannouncement constitutes an important part of prelaunch marketing activities for new product introduction (Gatignon and Robertson 1991; Rabino and Moore 1989). The preannouncement involves a variety of communications carrying new product-related messages to the market in advance of the actual launch (Eliashberg and Robertson 1988; Rabino and Moore 1989; Robertson, Eliashberg, and Rymon 1995). Accordingly, the nature of new product preannouncement can be better understood and analysed from a communication perspective.

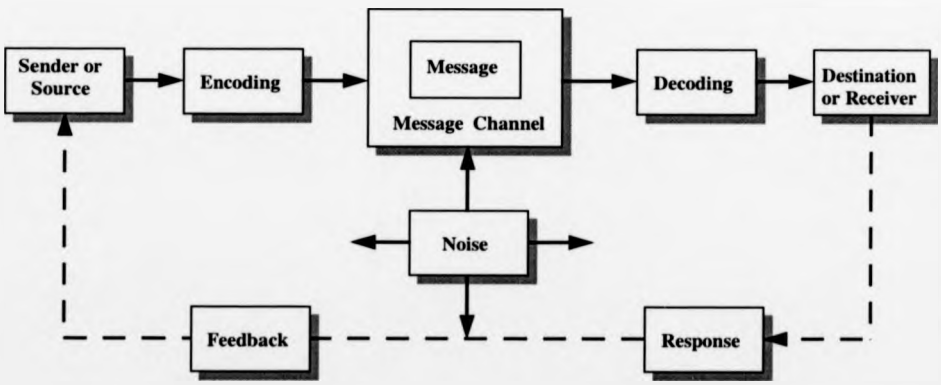
Communication is one of the human activities whereby individuals establish and share meaning with one another (Fill 1995; Rogers 1983). In the marketing context, communication is the process by which marketing organisations share information with target audiences to reach a mutual understanding (cf. Engel, Blackwell, and Miniard 1995). Much of marketing involves communication and, in fact, marketing has become more and more communication dependent (Duncan and Moriarty 1998). Fundamentally, there are two mainstreams in the academic research of communication: the process school and the semiotic school (Fiske 1990). The process school regards communication as a social interaction process in which individuals relate to others or influence the behaviour, thought, or emotion of others by means of messages. Communication works in the sense that messages are transmitted in the process (Krone, Jablin, and Putnam 1987). While the process school recognises the significant role of the message receiver involved in

communication, it stresses that the sender's intention, explicit or implicit, is a crucial factor in deciding what constitutes a message. That is, the meaning of messages mainly lies in what the sender puts into the messages. Undoubtedly, the sender must have a good understanding of the receiver in order to transmit meaningful messages. The foci of the process school are on issues such as how senders encode and receivers decode messages and how transmitters use the communication channels or media. On the contrary, the semiotic school views communication as the production and exchange of meanings. The main interest of this school is in finding how messages, or texts, interact with people to create meanings and the role of texts in our culture. The importance of the sender declines in the sense that the school focuses on messages themselves and how they are read. Owing to the nature of this research, discussion of communication will be focused on the viewpoint of the process school since its emphasis on the message-sending aspects of communication concurs with the position taken by the research.

The thought of the process school can be best expressed by a simple, linear model (Schramm 1955; Shannon and Weaver 1949), as shown in Figure 2.1. The model connotes five central issues in a communication process: (1) who (2) says what (3) in which channel (4) to whom (5) with what effect (Kotler 1994). The model itself is composed of nine components. Senders and receivers represent the major parties in a communication process. Encoding, decoding, response, and feedback are four major communication functions. Both messages and message (communication) channels refer to the major communication tools. Noise indicates the factors

happening throughout the communication process that result in the decrease of communication effectiveness (Berlo 1960). In a communication process, senders are individuals or organisations that encode and transmit the intended messages to receivers (Schramm 1955). Encoding involves transferring the message into a transmissible, symbolic form, which is carried by the message channel (Shimp 1997). Decoding involves the activities undertaken to transform and interpret the message back to thought (Fill 1995). After receiving the message, receivers may respond by transmitting its reaction to the sender via a feedback mechanism.

Figure 2.1
A Linear Model of Communication



Source: based on Fill (1995) and Kotler (1994)

By nature, preannouncing a new product is a communication process in which the preannounced messages flow from the sender (the firm) to the receiver (the target

audience). The preannouncer may obtain feedback on the messages from the receiver. In a marketing sense, new product preannouncement plays a dual role in new product development and introduction. Basically, new product preannouncement is used as prelaunch marketing communications. The preannouncement, intrinsically, is also one form of competitive market signalling. The duality inherent in new product preannouncement distinguishes it from other communications in marketing (cf. Lilly and Walters 1997; Rabino and Moore 1989).

2.2.1 As Prelaunch Marketing Communications

Marketing communications refer to the combination of all elements in a product's marketing mix that facilitate business exchange by establishing and conveying shared meaning with the product's customers and other stakeholders (Fill 1995; Shimp 1997). Marketing communications play an important role in the consumer adoption process, which refers to the mental stages an individual goes through in accepting an innovation and becoming a repeat purchaser (Shimp 1997). The communications serve to accelerate the rate of new product adoption, which may lead to an increase of the probability of product success. In short, the major tasks of marketing communications, if targeted at customers, are intended to inform them of the existence of a firm's offering, persuade them to engage in an exchange, remind them of the product benefits, and to differentiate the firm's offering from other competing products (Fill 1995). In the eyes of customers, preannounced products represent "phantom alternatives," which refer to the illusory choice options that look real but are currently unavailable (Farquhar and Pratkanis 1993). It is possible that

preannounced products will never be available in the market (Brockhoff and Rao 1993).

In addition to disseminating information to customers, marketing communications can also be undertaken as a means of transmitting product-related messages to other business organisations for the purpose of coupling these corporate entities in a value-adding business network. Among the organisations, the trade represent an important target audience at which marketing communications are directed (Doyle 1994). The trade and suppliers are often referred to as performance network members (Fill 1995). Likewise, marketing communications can be targeted at support network members, i.e., those not directly involved in the value-adding process, such as the financial community. A firm can engage in marketing communications with members in the network in which it is embedded so as to maintain or enhance the strength of its partnerships. In so doing, it may obtain substantial support from the network members, improving the acceptance of a new product in the marketplace.

Marketing communications are such important approaches to facilitating or accelerating customer adoption not only because they can influence the information processing of each customer individually, but also because they are capable of affecting customer decisions through interpersonal networks in a product diffusion process. Diffusion, by definition, is a process by which an innovation spreads via certain channels from its source of invention to its ultimate adopters over a period of time in a social system (Rogers 1983). A social system consists of a set of

interrelated units with a sense of commonality, including individuals, informal groups, organisations, or subsystems (Gatignon and Robertson 1991). When launching a new product, a firm may hope to achieve a rapid takeoff and accelerating and maximum penetration (Shimp 1997). More often, the firm relies on two means of communication--mass-media communication and word-of-mouth communication--to influence potential adopters (Mahajan, Muller, and Bass 1993). In the multi-step flow model of communication (Engel, Blackwell, and Miniard 1995; Fill 1995; O'Guinn and Faber 1991), some people are directly influenced by mass media communication while others are affected indirectly through word-of-mouth communication. Mass media can motivate information seekers to approach others, such as opinion leaders, for advice. The communication process also involves two-way interaction and influence among all members of target audience, including both opinion leaders and followers, by means of word-of-mouth.

New product preannouncement may increase the chance of a successful new product launch by imposing direct influence on customer adoption decisions (Burke, Cho, DeSarbo, and Mahajan 1990; Brockhoff and Rao 1993) or creating marketing hype (Lilly and Krishnan 1996; Rabino and Moore 1989). In contrast to other marketing communications that take place after product introduction, new product preannouncement is undertaken before the start of the diffusion process. Rogers (1983) emphasises the importance of pre-diffusion communication of new products to potential adopters. New product preannouncement represents a marketing strategy for innovations that precedes the market introduction (Manceau, Eliashberg, and Rao

1999; Rabino and Moore 1989). The preannouncement can affect customer adoption behaviour before launch not only by directly informing and persuading the customer but also by engendering the mechanisms in support of new product introduction within a social system (Gatignon and Robertson). The efforts to create such supportive mechanisms can be best described by the concept of marketing hype (Wind and Mahajan 1987).

Marketing hype refers to a set of prelaunch marketing activities intended to create a favourable and supportive market environment for the introduction of a new product (Wind and Mahajan 1987). The creation of marketing hype for the product involves the development of marketing strategies aimed at a broader set of relevant stakeholders, including suppliers, distributors, providers of support products, media, opinion leaders, etc. As critical communications for building marketing hype, new product preannouncement may take various forms such as public statements that release the future availability of a new product, advance advertisements for the product (Heil and Langvardt 1994), and publicity that disseminates new product-related messages through third party media, such as magazine, newspaper, and news programmes (Duncan and Moriarty 1998). Theoharakis, Wong, and Powell (1996) indicate that the excitement of a upcoming technology may lead to media hype, which in turn have a substantial impact on consumer adoption behaviour. At the interpersonal level, new product preannouncement may be used to stimulate word-of-mouth influence. Research has shown that exposure to favourable word of mouth may result in an increase of the probability of purchase, while exposure to

unfavourable comments lead to a decrease of the probability (Ardnt 1967). New product preannouncement can be managed to elicit positive word-of-mouth communication and minimise unfavourable word-of-mouth in advance of market launch.

2.2.2 As One Form of Competitive Market Signalling

Another way to view new product preannouncement is from a competitive perspective. New product preannouncement can be deemed as one form of competitive market signalling (Eliashberg and Robertson 1988; Robertson, Eliashberg, and Rymon 1995). A market signal refers to "any action by a competitor that provides a direct or indirect indication of its intention, motive, goal, or internal situation" (Porter 1980). Most often, competitive market signalling is embodied as announcements or preview of potential actions to convey information to or seek information from competitors (Heil and Robertson 1991). A signal sender deliberately and selectively leaks information to its competitors via a signaling process. As such, a firm may design new product preannouncements that unveil its potential market actions concerning its new products to communicate its intentions, motives, commitments, or threats, or to seek cooperation or feedback in the marketplace.

New product preannouncement is one kind of overt signalling in the sense that it refers to the conscious verbal communication of a position taken by a firm within an industry (Milewicz and Herbig 1996). The execution of new product preannouncements as competitive market signals may take a variety of forms, which

hinge on the particular competitor behaviour involved and the media employed (Porter 1980). Specifically, the preannouncements can be conducted through announcements made to the press at annual reporting time, reports to industry analysts, speeches at industry conferences, press releases, or any public statements (Heil and Robertson 1991; Milewicz and Herbig 1996). The preannounced messages are seldom conveyed to competitors directly; they are usually transmitted via third parties in the marketplace.

The value of new product preannouncement used as competitive market signalling is highly associated with the advantages of obtaining pioneership in the market (Eliashberg and Robertson 1988). By preannouncing its new product, a firm increases its potential to occupy a more profitable market segment, forestall its competitors, and enjoy favourable marketing resources. Another competitive function of the preannouncement is to either observe or change competitors' market behaviour. For instance, a tit-for-tat strategy executed through new product preannouncement can be employed to reveal future retaliatory moves against specific competitors with a view to changing the competitors' behaviour in the preannouncer's favour. Or the preannouncement can be aimed at testing competitors' reaction to a forthcoming product (Rabino and Moore 1989).

2.3 Likely Conditions for Preannouncing New Products

Firms are more inclined to preannounce their new products under certain conditions related to market, customer, and value chain (Robertson 1993). These

conditions, in a sense, represent driving forces for the occurrence of new product preannouncement. Specifically, the market-related conditions that may trigger a firm to preannounce its new product are when the firm is small, has a low market share, competes in a product category with low competitive reactivity, has strong patent protection, needs to establish industry standards, or can enhance its image or reputation by preannouncing (Eliashberg and Robertson 1988; Robertson, Eliashberg, and Rymon 1995). Preannouncing a new product is more advisable given certain patterns of customer behaviour, including high switching costs to adopt the new product, substantial customer learning requirements, and a long decision process of adoption (Gatignon and Robertson 1991). As for value chain-related conditions, preannouncing is advantageous if the product needs complementary products or the firm seeks the commitments of supply or distribution (Robertson 1993).

A firm with low market dominance within the product category is more likely to preannounce its new products in that product line cannibalisation incurred by preannouncing will be minimised due to its low market share (Gatignon and Robertson 1991). A small-sized firm tends to conduct new product preannouncements as it runs little risk of being accused of antitrust or predatory market behaviour (Eliashberg and Robertson 1988). In an environment where strong competitive reactions are less likely to happen, a firm is more willing to preannounce its new products because there is less threat from competitors (Robertson 1993). Likewise, strong patent protection insulates a firm from potential retaliation that may be triggered by the preannouncement (Robertson, Eliashberg, and Rymon 1995).

Moreover, new product preannouncement is beneficial if the preannouncement can help a firm create a dominant standard or a leading-edge image or reputation (Eliashberg and Robertson 1988).

When customers must undertake substantial switching costs to convert to a new product, new product preannouncement may allow them to engage in advance planning for changeover so as to minimise the costs (Eliashberg and Robertson 1988). A firm is more likely to preannounce a new product when it requires considerable customer learning before adoption (Robertson 1993). The value of new product preannouncement lies in building customer knowledge about this product prior to product launch. When the process of customer's adoption or purchase decision is lengthy, the use of new product preannouncement can start the decision process by initiating consideration (Gatignon and Robertson 1991).

The success of a new product, to some extent, depends on the participation and commitment of other firms in the value chain (Robertson 1993). The support from value chain members is especially important when the product needs complementary products or the firm needs to establish supply or distribution commitments. In such circumstances, new product preannouncement may be employed to build and strengthen the participation and commitment.

2.4 Planning of New Product Preannouncement

A firm normally needs to go through a series of decision-making processes to determine whether or not, and how, to preannounce its new products before actually

taking precise market actions (Eliashberg and Robertson 1988). The first managerial decision regarding new product preannouncement is whether to preannounce new products or to maintain secrecy (Heil and Robertson 1991). The rule of thumb for this decision is that what will be gained from the preannouncing should exceed the costs which may be incurred (Eliashberg and Robertson 1988). The benefits of preannouncing are mainly tied to rapid market penetration and market pioneer advantages (Gatignon and Robertson 1991). In contrast, the most salient costs are the inherent risks involved in preannouncing. The major preannouncing risks include cueing competitors who may react quickly and aggressively, cannibalising the firm's existing product line, hurting the firm's reputation if it fails in delivering the preannounced product, or causing antitrust allegation, etc. (Eliashberg and Robertson 1988).

The firms that decide to preannounce new products are inclined to emphasise more the benefits of preannouncing, while non-preannouncing firms tend to focus more on the inherent risks. Preannouncing and non-preannouncing firms differ in their decisions regarding whether to preannounce or not because they reach different conclusions based on the results of cost-benefit analysis (Eliashberg and Robertson 1988). In other words, preannouncing firms believe that new product preannouncement is advantageous, while non-preannouncing firms stress that the risks of preannouncing new products outweigh the possible benefits.

Once a firm has decided to preannounce, the next managerial decision concerns the determination of target audiences and strategic objectives (Lilly and Krishnan

1996; Rabino and Moore 1989). The strategies for preannouncing new products are accordingly formulated based on the set objectives. In short, the subsequent preannouncing decisions deal with how new product preannouncement will be done, that is, what the preannouncements entails, when this should be done, where, and to whom the preannouncements will be targeted (Lilly and Walters 1997).

2.5 Target Audiences and Strategic Objectives

New product preannouncements are usually coordinated, formalised, and implemented to align with a variety of overlapping strategic objectives (Lilly and Walters 1997; Rabino and Moore, 1989). Normally, setting strategic new product preannouncing objectives is concurrent with the target audience selection. In other words, the preannouncing objectives are audience-specific (Eliashberg and Robertson 1988).

2.5.1 Target Audiences

New product preannouncements may be directed at multiple audiences (Lilly and Krishnan 1996; Lilly and Walters 1997; Robertson, Eliashberg, and Rymon 1995). The study of Eliashberg and Robertson (1988) indicates that the major audiences of new product preannouncements are as follows: salesforce (84%), customers (79%), and distributors (55%). Likewise, a German study shows that 63% of firms mainly preannounce messages to channel members as well as to consumers (Preukschat 1992). Although not reported as a key target audience in these two

studies, competitors have long been believed to be an important audience for varying market signals (e.g., Banks and Sobel 1987; Cho and Kreps 1987; Engers 1987; Engers and Fernandez 1987). In summary, three prospective audiences at which new product preannouncements are targeted are competitors, customers, and other key stakeholders, i.e., those which are directly or indirectly involved in the value chain such as suppliers, distributors, or supporting firms.[1] A preannouncing firm disseminates new product-related messages to one or more of these audiences with the intention to affect or change their attitude and behaviour in such a way as to facilitate or accelerate future product adoption and diffusion.

2.5.2 Competitor-specific Strategic Objectives

Most of the research in economics and marketing investigates market signalling in a competitive domain, where competitors are the target audience. Where competitors are the target audience, the most important motive for preannouncing new products is to pre-empt competitors (Eliashberg and Robertson 1988; Brockhoff and Rao 1993). New product preannouncement also can be employed on occasion to attain competitive norms of conduct, e.g., a particular product standard (Thomas and Soldow 1988), to counterattack competitive market actions (Rabino and Moore 1989), or to observe competitors' reaction (Heil and Robertson 1991).

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[1] The arguments for corporate shareholders to be the audience of new product preannouncements have gained little support. There is either no confirming evidence (e.g., Eddy and Saunders 1980) or only some evidence demonstrating minor positive effects on stock prices (e.g., Chaney, Devinney, and Winer 1991; Wittink, Ryans, and Burrus 1982), even though a positive relationship between stock price and new product announcement is predicted, assuming that the main objective of a firm is to maximize shareholder's wealth.

To Pre-empt

New product preannouncement can be used to erect barriers to entry and thus to pre-empt its competitors. By preannouncing new products, a firm can obtain pioneering advantages before other firms enter the market or launch their new products (Gatignon and Robertson 1991). Existing competitors and later market entrants may be forced to position their products in smaller or less profitable segments (Eliashberg and Robertson 1988) or customers' purchase of their products may be forestalled (Brockhoff and Rao 1993). A classic example is Boeing's preannouncement of its 787 as a preemption of the 650 passenger aircraft market against Airbus (Business Week 1993).

To Attain Competitive Norms of Conduct

New product preannouncement may serve as a means of forming industry norms of conduct, i.e., rules guiding competitive interaction among firms in the market (Thomas and Soldow 1988; Spender 1989). In industries such as VCRs, telephones, or computers, new product preannouncements, especially those sent by dominant firms, may facilitate the standardisation of specifications or operating systems (Eliashberg and Robertson 1988), which in turn would help build primary demand (Robertson, Eliashberg, and Rymon 1995). Contrarily, a new product may be preannounced to redefine the currently prevalent attributes that customers use to evaluate existing products (Burke, Cho, DeSarbo, and Mahajan 1990).

To Counterattack

Even though a firm may not plan to preannounce its new products, it does so in response to its competitors' market moves, such as a product launch, promotions, or preannouncements. New product preannouncement can be oriented toward informing the competitors of the firm's retaliatory actions (Rabino and Moore 1989). Robertson, Eliashberg, and Rymon (1995) found that approximately twenty percent of the U.S. and U.K. preannouncing firms which were aware of the competitors' new product preannouncements counter-signalled the introduction of their own new products.

To Observe Competitors' Reaction

In the competitive domain, new product preannouncement can function as a ballondessai, i.e., a sensor for detecting competitors' plans or actions against the upcoming products. The preannouncement may encourage competitors to reveal possible future reactions. For instance, the competitors may respond to the preannouncements by revealing the status of their own new product development or how rigorously they will defend particular markets (Heil and Robertson 1991; Robertson, Eliashberg, and Rymon 1995).

2.5.3 Customer-specific Strategic Objectives

New product preannouncement, if aimed at customers, can facilitate or accelerate the initial rate of customer adoption through evoking curiosity and interest (Lilly and Krishnan 1996), advancing consumer learning (Gatignon and Robertson 1991),

reducing adoption resistance, lowering switching costs (Eliashberg and Robertson 1988), or enhancing image (Rabino and Moore 1989). Thus, the preannouncement may function to hasten the take-off point in the typical diffusion pattern, helping a preannouncing firm achieve market penetration quickly, or to encourage buyers to delay purchasing currently available products in the market (Lilly and Walters 1997).

To Evoke Curiosity and Interest

While product curiosity represents a desire to learn more about a new product, product interest can be regarded as emotional involvement in a new product (Lilly and Krishnan 1996). Cues regarding a new product provided by new product preannouncements can stimulate consumer's curiosity about and interest in the preannounced product before it becomes available in the market. This objective matches with the concept of generating marketing hype, the aim of which is to create a favourable environment for product adoption (Wind and Mahajan 1987).

To Enhance Customer Learning

In the case of high involvement adoption, customers must engage in substantial learning before adopting a new product (Gatignon and Robertson 1985). Preannouncing new products would inform them of the product availability and attributes by which they may form a priori judgement beforehand (Gatignon and Robertson 1991). In such a context, new product preannouncement, as a marketer-controlled communication, can help a firm communicate the knowledge in favour of its new product to increase persuasibility. Thus, consumers would include the product (even yet unavailable) in their choice set or they would increase their

purchase intention if they have already included the product in their choice set (Burke, Cho, DeSarbo, and Mahajan 1990).

To Reduce Adoption Resistance

Any new product with a high degree of change may result in consumers' resistance to adoption. The resistance to a new product is a function of two factors--perceived risk (Rogers 1983; Sheth 1981) and cognitive risk (Ram 1989). Perceived risk stems from the fear of performance uncertainty (functional risk), economic loss (economic risk), social ostracism or ridicule (social risk), or psychological discomfort (psychological risk). In contrast, cognitive resistance takes place when consumers have to change their current behaviour or modify current beliefs about the product class in order to adopt an innovation. A firm can reduce or overcome such adoption resistance by propagating informative or persuasive messages in the early stages of an innovation.

To Lower Switching Costs

Switching costs represent one-time costs to the buyer to convert to a new product, which include both the purchase costs of the new product and the related costs of changing the production or consumption system (Eliashberg and Robertson 1988). As an entry barrier, such costs may significantly impede customers' adoption of a new product so as to favour current competitors (Porter 1980). When high customer switching costs are expected, new product preannouncement can function to encourage advanced planning for changeover. The preannouncement may initiate the

process of educating customers about how to change over within minimum disruption and costs.

To Encourage Purchase Delay for Currently Available Products

Product obsolescence refers to the phenomenon that a relative price loss is induced because of the style change or quality improvement caused by the launch of subsequent product versions (Levithal and Purohit 1989). This phenomenon is particularly prevalent in durable goods industries. The value of a durable product quickly decreases not because the product becomes useless or less productive, but because newer or superior products are introduced. In a market characterised by rapid product obsolescence, customers tend to have higher expectations for the next product generation. A firm has to keep launching new superior products faster than its competitors do in order to maintain its market share (Cordero 1991). As such, preannouncing new products would create, meet, or escalate customers' expectations for better products. The preannouncement prevents them from purchasing competitors' products and makes them willing to wait until the firm's new product is available (Lilly and Krishnan 1996; Lilly and Walters 1997).

To Enhance Image

Image maintaining or enhancement represents another motive for preannouncing new products. As an example, Fujitsu's leap to preannounce its new mainframes prior to IBM's system 390 preannouncement would seem to be motivated by a desire to seize the initiative and create a leading edge position. Preannouncing innovative products, especially those involved in rapidly changing technology, may

accrue significant benefits like the creation of a new image for the firm (Rabino and Moore 1989; Robertson 1993).

To Seek Customers' Feedback

One important strategic objective guiding new product preannouncement to customers is to obtain their feedback. The feedback from customers may provide diagnostics about the preannounced product. It is valuable market intelligence that can be utilised for revising or fine-tuning subsequent product design and marketing actions (Lilly and Krishnan 1996).

2.5.4 Strategic Objectives Specific to Other Key Stakeholders

New product preannouncement may play a pivotal role in pre-launch activities by creating a conducive market environment for new product acceptance. Under the circumstances, the preannouncement seeks to reach key stakeholders such as distributors, the providers of supporting products and services, and opinion leaders, whose future attitude or behaviour will affect the success of product launch (Wind and Mahajan 1987).

To Secure the Support of the Distribution System

The extent to which a new product is accepted by the trade affects its market penetration (Jones and Ritz 1987). Product availability is a function of the perceived uniqueness of a new product, the number of competing distributors which have already adopted the product (Rao and McLaughlin 1989), and the perceived likelihood of product delivery (Brockhoff and Rao 1993). The uncertainty about a preannounced product forces distributors to face tough decisions such as: whether, or

in what amount, to stock the preannounced product and how to sell the present stock to minimise cannibalisation. Preannouncements may be employed to reduce such uncertainty.

To Stimulate the Generation of Complementary Products

New product preannouncement can trigger the search for and creation of business alliances (Robertson, Eliashberg, and Rymon 1995). Many new products require complementary products to be of use to customers. Availability of complements can build buyer demand for the new products as well. For instance, computers would not work without the availability of software, and videocassettes recorder (VCRs) were of little value until movies became available on cassettes. In 1986, IBM preannounced its professional work station, specifically focusing on the limited availability of supporting software, with a view to creating an entry route for business affiliates. Firms are more likely to conduct new product preannouncements if they regard the preannouncements as a means of stimulating other firms to develop complementary products to their new products (Lilly and Walters 1997; Robertson 1993). Hence, the more dependent a new product is on complementary products, the more important new product preannouncement will be.

To Obtain Favourable Opinion Leadership and Word of Mouth

Another function of new product preannouncement is to generate favourable comments from opinion leaders on new products before launch. Favourable word of mouth may facilitate market penetration throughout the product life cycle (Bayus 1985). Opinion leaders, such as industry experts or leading-edge specialists, have

long been viewed as the stakeholders who may affect the perceived value of the product by way of their word of mouth or endorsement of the product. The influence of opinion leaders may come from their technical competence, social accessibility, or conformity to the social system's norms (Smith and Grimm 1991). In the preannouncing context, they influence people by informing them about new products, providing advice, and reducing their perceived risk in adopting the products (Shimp 1997). The effect of word of mouth is prevalent especially in the industries characterised by advanced technology (Rabino and Moore 1989) or symbolic innovation, such as in fashion or design (Hirschman 1981). A salient case is provided by Microsoft, which created favourable word-of-mouth impact by sampling thousands of copies of Windows 95 before launch (Shimp 1997).

To Impress Current and Potential Shareholders

A firm may preannounce new products to impress shareholders or investors (Eliashberg and Robertson 1988). Preannouncing new products can boost the firm's stock price. Occasionally, a new product preannouncement along with a favourable financial report can serve as a shield for bad business performance (Rabino and Moore 1989).

To Seek Feedback from Other Key Stakeholders

A firm may seek to evoke responses to the preannounced products from other key stakeholders in addition to customers. In particular, feedback on the design of a new product and its potential demand from distributors, strategic partners, or opinion leaders can be critical marketing information or knowledge (Lilly and Walters 1997).

Such feedback may subsequently be used to forecast sales and guide product, distribution, and promotional adjustments (McKeena 1995).

2.6 Execution of New Product Preannouncement

A firm needs to engage in a series of integrated and multifaceted managerial actions in order to preannounce its new product (Rabino and Moore 1989). Specific strategies or tactics for preannouncing the product have to be correctly implemented. Important facets of communication in the execution of new product preannouncement include: message, communication channel, and timing (cf. Mohr and Nevin 1990; Rabino and Moore 1989). A successful new product preannouncement, to a great extent, relies on an appropriate mix of various preannouncing behaviours with regard to these facets.

Like advertising messages, messages of new product preannouncement are constituted by a combination of content ("what is said") and form ("how it is said") (Lilly and Krishnan 1996). Preannounced messages convey product features or benefits to various target audiences and, simultaneously, differentiate a firm from its competitors (Wind and Mahajan 1987). Messages about new products may be released through a variety of communication channels such as press conferences, memorandums, advertisements, trade publications, or trade shows (Lilly and Walters 1997). Preannouncing firms may vary the number of exposures (frequency) of the preannouncements in these different channels (cf. Rossiter and Percy 1987). The timing of new product preannouncement concerns when a new product should be

preannounced. Appropriate preannouncing timing is found critical to the success of the new product (Lilly and Walters 1997). In a sense, the implementation of strategies for preannouncing new products is intended to convey the right messages through the right channels at the right time.

2.7 Conceptual Framework

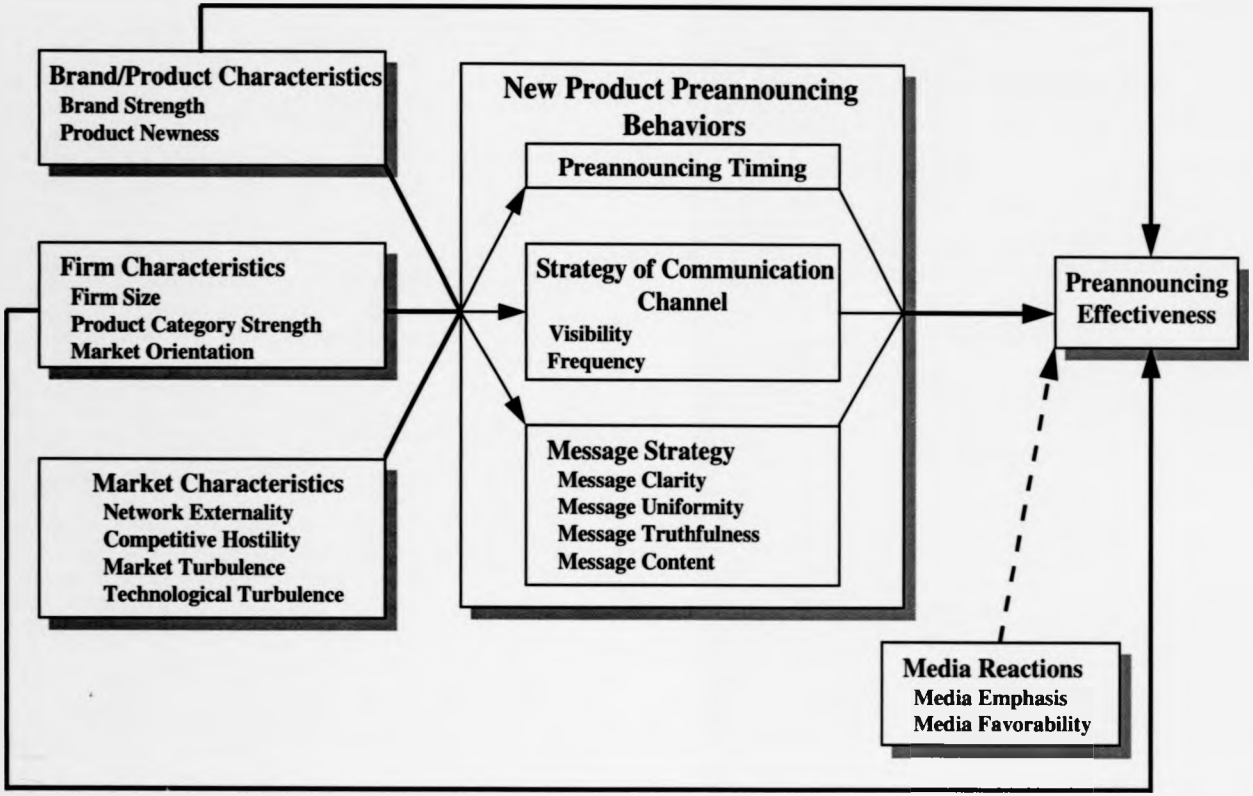
To address the research questions outlined in Chapter 1, a conceptual framework (illustrated in Figure 2.2) is proposed that depicts the links among the strategic behaviours of new product preannouncement, their situational factors, and preannouncing effectiveness. Stemming from the process school of communication (Fiske 1990), this framework regards preannouncement as the transmission of messages and takes the viewpoint of the message sender. Verbal, instead of behavioural, messages sent by preannouncing firms are of interest (cf. Heil and Robertson 1991). The logic underlying different preannouncing behaviours is that new product preannouncements are driven by how mangers perceive their internal and external environments (Eliashberg and Robertson 1988). This framework reflects the fact that differences in new product preannouncing behaviours exist across products, firms, and markets (Lilly and Walters 1997; Rabino and Moore 1989; Gatignon and Robertson 1991).

This framework encompasses three major aspects of new product preannouncement: strategic behaviours of new product preannouncement, situational factors influencing the behaviours, and effectiveness of new product preannouncement. New product preannouncing behaviours can be analysed in terms

preannouncement. New product preannouncing behaviours can be analysed in terms of message strategy, strategy of communication channel, and preannouncing timing. Message strategy is composed of four constructs: message clarity, message uniformity, message truthfulness, and message content. Frequency and visibility are two key dimensions of communication channel strategy. Situational factors consist of the characteristics of brand/product, firm, and market. Specifically, brand strength and product newness represent brand/product characteristics. Firm characteristics comprise firm size, product category strength, and market orientation. Market characteristics contains four constructs: network externality, competitive hostility, market turbulence, and technological turbulence.

According to the framework, the behaviours affect preannouncing effectiveness, and they are influenced by brand/product, firm, and market characteristics (cf. Cavusgil and Zou 1994). Brand/product and firm characteristics have direct effects on preannouncing effectiveness as well. The reactions of media to the preannouncement, i.e., media emphasis and media favourability, are included in the model as controls for the relationships between preannouncing effectiveness and its antecedents, including new product preannouncing behaviours and situational factors (cf. Dean and Sharfman 1996).

FIGURE 2.2
Conceptual Framework for New Product Preannouncement



2.8 Summary

This chapter reviewed the relevant literature of new product preannouncement with a view to establish a conceptual framework for analysing new product preannouncement. The literature review started with a discussion of the nature of new product preannouncement. From a communication perspective, new product preannouncement plays a dual role as prelaunch marketing communications and as one form of competitive market signalling. New product preannouncements are most likely to occur under certain circumstances related to market, customer, and value chain. A firm has strong motivations to preannounce its new product when it is small, has a low market share, competes in a less competitive product category, has strong patent protection, needs to establish industry standards, or can enhance its image by preannouncing. Preannouncing is also advisable if customer adoption entails high switching costs, substantial learning, and a long decision process. New product preannouncement is prevalent when the focal product needs complementary products or the firm seeks the cooperation of supply or distribution.

Planning of new product preannouncement involves a series of managerial decisions that determine whether or not, and how, to preannounce its new products before actually taking precise market actions. Competitor-specific , customer-specific, or other key stakeholder-specific objectives are associated with the use of new product preannouncements. Execution of the preannouncements mainly deal with what, where, and when to preannounce new products. Following the review, a conceptual framework is proposed for new product preannouncement. Guided by this framework, the research

hypotheses of this study will be proposed along with a thorough discussion of the rationale underlying the hypotheses in Chapter 3.

Chapter 3

Research Hypotheses

3.1 Introduction

Chapter 2 reviewed the literature related to new product preannouncement. A conceptual framework was proposed depicting the links among the situational factors, strategic behaviours, and effectiveness of new product preannouncement. The framework guides the development of specific hypotheses which are subsequently tested in this research.

The remaining sections of this chapter discusses the proposed hypotheses in light of the structure of the conceptual framework. Section 3.2 starts with an investigation into how the effectiveness of new product preannouncement is measured. Next, the emphasis is placed on understanding strategic behaviours of new product preannouncement. Section 3.3 analyses new product preannouncing behaviours in terms of message strategy, strategy of communication channel, and preannouncing timing. The behaviours account for the effectiveness of new product preannouncement. Section 3.4 subsequently discusses the role of media emphasis and media favourability as control variables in the relationships between preannouncing effectiveness and its antecedents, including preannouncing behaviours and situational factors. Finally, Section 3.5 explains the influences of situational factors on preannouncing behaviours and effectiveness.

3.2 Effectiveness of New Product Preannouncement

From a managerial perspective, the performance of new product preannouncement can be captured in terms of the extent to which a firm's strategic objectives for preannouncing a new product are achieved, weighted by the relative importance of the objectives (cf. Dean and Sharfman 1996). As mentioned earlier, a firm usually initiates new product preannouncements with a number of objectives related to the target audiences. Different importance levels are assigned to those objectives (Eliashberg and Robertson 1988). After formulating and implementing new product preannouncing strategies, some objectives can be achieved fully; whereas others only marginally. An index of objective attainment weighted by importance is therefore a gauge of the impact of new product preannouncement.

The measure of objective achievement, in a sense, is an approach to evaluating the effectiveness of new product preannouncing behaviours from an absolute perspective. Another possible way of developing the measurement of new product preannouncing effectiveness is from a comparative viewpoint. As such, it is proposed that new product preannouncing effectiveness can also be captured by comparing the current performance with the performance of the previous preannouncements and with the performance of the key competitors' preannouncements (cf. Jaworski and Kohli 1993).

3.3 New Product Preannouncing Behaviours

The main strategic decision of preannouncing new products concerns preannounced messages ("what"), communication channels ("where"), and preannouncing timing ("when") (Eliashberg and Robertson 1988; Lilly and Walters 1997; Rabino and Moore 1989; Robertson, Eliashberg, and Rymon 1995). It is therefore proposed that strategic behaviours of new product preannouncement can be studied from these three aspects. Accordingly, new product preannouncing behaviours are discussed as below in light of strategies for messages, communication channels, and preannouncing timing (cf. Mohr and Nevin 1990).

3.3.1 Message Strategy

What should be delivered in a new product preannouncement is a decision involved in the selection and encoding of messages. Messages represent the physical products of communication (Berlo 1960) and they are the prime concern in communication. If well designed and delivered, messages can influence the message receivers' views and make them conform to the senders' intents (O'Guinn and Faber 1991). In marketing communication, messages are controlled by firms to disseminate content (message elements) in favour of their products (Lilly and Krishnan 1996). Messages embodied in the preannouncement can be analysed in terms of their clarity (Eliashberg, Robertson, and Rymon 1995; Gatignon and Robertson 1991), uniformity (Heil and Robertson 1991; Lily and Walters 1997), truthfulness (DePaulo 1988; Heil and Langvardt 1994), and content (Liebermann and Flint-Goor 1996; Weinberger and Spotts 1989).

Message Clarity

Message clarity denotes the extent of unequivocality with which the messages are delivered. The preannounced messages may carry a multiplicity of meanings, as equivocality, or ambiguity, is invariably present in any market signal. Unequivocal messages are clear, specific and may lead to a single, uniform interpretation by the receivers (Daft and Macintosh 1981). Preannouncements without equivocality convey messages which can be read and which make causal attribution quickly, with minimum error (Jervis 1970). In contrast, equivocal preannouncements contain an array of informational cues intended to generate multiple and conflicting interpretations (Daft and Macintosh 1981; Daft, Lengel, and Trevino 1987). Message clarity is high when a firm sends well-defined, precise messages in advance of product introduction. A firm can disseminate new product preannouncements which differ in clarity, depending on the precision with which the firm wishes its audiences to interpret its messages (Heil and Robertson 1991). The effectiveness of new product preannouncement is a positive function of message clarity. Clearer messages can minimise misinterpretation or misjudgement on the part of the message receivers, hence enabling them to make more precise causal attribution. The increase in the receivers' message processing quality will subsequently increase the likelihood of gaining recipients' reactions consistent with the preannouncer's expectations (Gatignon and Robertson 1991). The following hypothesis is suggested.

H1: The clearer the preannounced messages, the higher the preannouncing effectiveness.

Message Uniformity

Generally, a firm may disseminate various new product preannouncements, simultaneously or sequentially, prior to product launch. Message uniformity stands for the degree to which messages about a new product are similar or consistent across different preannouncements made by the firm (Lilly and Walters 1997). The uniformity of messages in new product preannouncements can enhance the target audience's acceptance and interpretation of the messages (Heil and Robertson 1991; Howell and Burnett 1978). It is therefore envisaged that preannouncements are more likely to be effective if the preannounced messages are compatible with one another (Duncan and Moriarty 1998; Wind and Mahajan 1987). Hence, the next hypothesis:

H2: The more uniform the preannounced messages, the higher the preannouncing effectiveness.

Message Truthfulness

Message truthfulness denotes the extent to which the preannounced messages reflect actual product-related situations, e.g., product design and development, availability, and launch plan. At one extreme, the preannounced messages can be totally fake (Heil and Robertson 1991). Or they may be true in some aspects, but

false in other aspects. The spread of message truthfulness lies in the nature that the preannounced actions need not always be carried out (Porter 1980). One example of extremely untruthful messages is bluffing. Bluffs are unfulfilled market signals, which sometimes can serve a competitive function to mislead, threaten, or deter competitors (Eliashberg, Robertson, and Rymon 1991; Porter 1980). However, market scepticism toward the bluff, the firm, and its future market signalling may be incurred. As such, the effect of bluff on competitive objectives is yet uncertain. Likewise, the prediction of the relationship between message truthfulness and the effectiveness of new product preannouncement suffers from conflicting arguments. Hence, no directional hypothesis is offered.

Message Content

New product preannouncements are composed of a variety of new product-related messages. Message content refers to the amount of cues in the preannouncements (cf. Keown, Jacobs, Schmidt, and Ghymn 1992). Cues in new product preannouncements may include product features, uniqueness, application, availability, pricing structure, packaging, etc. (Burke, Cho, DeSarbo, and Mahajan 1990; Heil and Waters 1993; Lilly and Krishnan 1996; Lilly and Walters 1997). Extrinsic cues, like price and brand name, represent product-related attributes that are not part of the physical product; on the other hand, intrinsic cues, like product ingredients and features, are product-related attributes associated with physical properties of the product (Richardson, Dick, and Jain 1994). Preannouncing high detail about a new product raises the communication impact on the audiences, e.g.,

consumers, so that the probability for them to form positive attitude toward the product increases. However, under certain circumstances, releasing a low level of detail may arouse their curiosity (Lilly and Krishnan 1996). The link between message content and effectiveness of new product preannouncement hinges on what the strategic objectives are.

3.3.2 Strategy of Communication Channel

Like advertising, new product preannouncement inevitably involves two main decisions concerning the communication channels to preannounce through and how to expose the messages in the channels (Rossiter and Percy 1987). In the diffusion process, a communication channel refers to a mechanism by which a source transmits the innovation-related information to a receiver (Rogers 1983). Marketing communication channels can be the media targeted at mass audience, such as radio, television, newspaper, and so on. Or the channels can be interpersonal, which involves face-to-face exchanges between two or more individuals (Schramm 1955).

Different communication channels vary in their coverage, efficiency, and credibility. Rabino and Moore (1989) indicate that the choice of new product preannouncing communication channels should keep in line with the selection of target audiences since the channel choice represents a means of controlling the communication of messages to the audiences. In the study of Robertson, Eliashberg, and Rymon (1995), new product preannouncements were conveyed via press announcements (32.1%), trade journals (26.1%), trade shows and conferences (11.2%), speeches (9.0%), word-of-mouth (5.2%), and other vehicles (16.4%). The

findings show that about one-third of the preannouncements are disseminated using the media to reach broader audiences, whereas about one-half of the preannouncements are via more specialised media.

Visibility

The extent to which the preannouncements about a new product are publicized is referred to as visibility (Smith and Grimm 1991). Besides increasing exposure, sending messages via highly public channels may heighten the credibility of new product preannouncements (Eliashberg, Robertson, and Rymon 1995). Both the increases of exposure and credibility lead to the message receiver's quicker acceptance of the preannouncement, which, in turn, escalates the likelihood that the messages will be deciphered as the preannouncer expects. Hence, the visibility of new product preannouncements is more likely to be associated with better communication effect.

H3: The more visible the new product preannouncements, the higher the preannouncing effectiveness.

Frequency

In a preannouncing context, frequency refers to the number of times a firm sends messages concerning a new product within the preannouncing duration (cf. Mohr, Fisher, and Nevin 1996). In other words, frequency is a measure of how often new product preannouncements are communicated to target audiences. The audiences

have more opportunity to receive the messages about a new product if the preannouncements are sent more frequently. As media exposure has a positive effect on the attainment of communication objectives, like the generation of brand awareness, so does frequency of new product preannouncement on preannouncing effectiveness.

H4: The more frequently the new product preannouncements are disseminated, the higher the preannouncing effectiveness will be.

3.3.3 Preannouncing Timing

Preannouncing timing is the time point when a firm intentionally begins to communicate new product-related messages to the external environments prior to the launch of the new product. The duration of new product preannouncement starts from the deliberate dissemination of the messages before new product introduction and ends with the actual launch (Lilly and Walters 1997). The earliness of preannouncing timing can thus be measured by the length of preannouncing duration. That is, a long preannoncing duration equates with early preannouncing timing, while a short duration implies late preannouncing.. New product preannouncing timing appears to vary across different product categories, different firms, or even different products within a firm (Lilly and Walters 1997; Rabino and Moore 1989). The timing, in general, ranges from one month in advance of product availability to two years, with the median being between three to four months (Eliashberg and Robertson 1988).

Earlier message release may give the message receivers more time to decipher or interpret the messages. Thus, the message receivers may understand fully the intentions of the sender. The more the audiences understand the preannouncer's intentions, the more likely they will act in the direction the preannouncer expects. Lilly and Walters (1997) contend that early new product preannouncements are particularly appropriate for complex or highly innovative products since the preannouncements allow key stakeholders like channel members and customers to become familiar with the products.

H5: The earlier the preannouncement of a new product, the higher the preannouncing effectiveness.

3.4 Reactions of the Media

As marketing communication is normally a multi-step flow process, the media play an very essential role in spreading information to target audiences (Cutlip, Center, and Broom 1994) and creating a receptive climate for any forthcoming innovation (Wind and Mahajan 1987). Compared with advertising and company sponsored announcement, media coverage is perceived to be more credible, although it is less controllable from a managerial viewpoint. Media emphasis and media favourability are two aspects of media coverage that may reflect the media's reactions to new product preannouncement.

Media Emphasis

This is captured by the extent to which the media pay attention to the preannouncement. Media emphasis on different preannouncements varies according to their news value. The media can affect audience attention and opinion by highlighting or raising the salience of the preannouncement. In a political domain, relative media emphasis on issues has been proven to have a cumulative effect on the audience, i.e., the electorate. There exists a high correlation between the relative number of people concerned about issues and the relative media emphasis on the issues (e.g., McCombs and Shaw 1972).

Media Favourability

Media favourability indicates the degree to which the media coverage is in favour of the new product preannouncement. A preannouncing firm expects to generate support-arguments on its new product preannouncement out of the media. Support-arguments from the media are found to be positively correlated to message acceptance (Fill 1995). Accordingly, favourable media coverage, consistent with what the firm would like to present, helps the firm create a favourable climate for its future product launch.

Normally, it is expected that media emphasis and media favourability can enhance preannouncing performance. The support from the media is critical in building recognition and interest in a firm and its products. For new product introduction, positive media support helps to create a conducive environment for the adoption of the preannounced new products (Wind and Mahajan 1987). Green,

Barclay, and Ryans (1995) found that greater magazine coverage during the period of new product introduction results in better long-term performance. Thus, there should exist positive correlations between both media emphasis and media favourability and effectiveness of new product preannouncement. These two media-related constructs are incorporated into the conceptual framework only as control variables. They represent the environmental factors outside the control of managers which may influence the success of new product preannouncing behaviours. Hence no hypothesis is provided.

3.5 Situational Factors

New product preannouncing behaviours vary according to the conditions shaped by particular characteristics of brand/product, firm, and market (Rabino and Moore 1989). The hypothesised relationships between situational factors and the behaviours of new product preannouncement can be rationalised on the basis that preannouncing decisions are driven by how managers perceive their environments (Eliashberg and Robertson 1988). This implies that preannouncing firms are supposed to evaluate the inner and outer conditions before choosing appropriate approaches. Brand strength and product newness are two brand/product characteristics which influence new product preannouncing behaviour. Among the firm characteristics, firm size, product category strength, and market orientation represent three key antecedents of the preannouncement. The market characteristics herein represent external environmental factors influencing new product

preannouncing decisions. In the preannouncing context, the most significant market characteristics are network externality, competitive hostility, market turbulence, and technological turbulence.

3.5.1 Brand/Product Characteristics

Brand Strength

Many new products are introduced in the markets using established brand names. A study by Aaker (1991) shows that 89% of new products launched are line extensions, 6% are brand extensions, and only 5% are new brands. Marketing new products with existing brand names may lower brand development and marketing costs, gain revenues in the extension market, and further enhance brand image (Lane and Jacobson 1995). As such, the marketing efforts a firm makes to preannounce a product, to some extent, depend on the parent brand's strength.

Brand strength can be measured in terms of brand recall, brand recognition (Francois and MacLachlan 1995), favourability of association (Aaker and Keller 1990), and purchase behaviour-intention (Srivastava and Shocker 1991). Strong brands are more likely to be associated with higher levels of brand loyalty, name awareness, and perceived quality and with favourable brand associations and channel relationships (Aaker 1991). A new product affiliated with a stronger brand may save on communication efforts and expect better outcomes (Dacin and Smith 1994). This means that a strong branded new product does not have to be preannounced too early or frequently and that the product can enjoy higher preannouncing effectiveness due to brand heritage, ceteris paribus. Nevertheless, communication in support of the new

product must not dilute or damage the original brand image (Park, Jaworski, and MacInnis 1986; Park, Milberg, and Lawson 1991), implying that preannounced messages must be delivered in a clearer and more truthful fashion. It is therefore predicted that

H6a: As the brand strength of a preannounced product increases, (1) the clarity of message increases; (2) the truthfulness of the preannounced messages increases; (3) the preannouncing frequency decreases;. (4) the earliness of preannouncing timing decreases.

H6b: As the brand strength of a preannounced product increases, the preannouncing effectiveness increases.

Product Newness

Any new product or technology needs more time to be fully understood (Baker and Hart 1999). As mentioned earlier, customer resistance to a new product is a function of perceived risk (Rogers 1983; Sheth 1981) and cognitive risk (Ram 1989). Perceived risk is derived from the fear of performance uncertainty (functional risk), economic loss (economic risk), social ostracism or ridicule (social risk), or psychological discomfort (psychological risk), whereas cognitive resistance occurs if customers must change their current behaviour or modify current beliefs about the product class before they adopt the product. Either case (to change behaviour or

modify beliefs) requires customers to make substantial cognitive efforts to collect product-related information. The adoption process will begin only after the innovation resistance has been overcome.

When the newness of a product is high, it seems beneficial to communicate detailed product-related messages to customers before launch to reduce their adoption resistance (Ram 1989; Brockhoff and Rao 1993), enhance their learning (Eliashberg and Robertson 1988), induce positive expectations (Lilly and Krishnan 1996), or enjoy the pioneership (Kerin, Varadarajan, and Peterson 1992). In short, preannouncement may become a powerful weapon to establish or educate the market in advance of launch when the product newness is high. Preannouncing a newer product can also increase the support of other key stakeholders who may use the messages to make some specific management decisions. For instance, channel members may use the preannounced information for the purpose of stock management (Brockhoff and Rao, 1993). Hence, new product preannouncements in the context of high product newness may be designed with a view to reducing the audiences' cognitive efforts to collect and interpret messages (Burke, Cho, DeSarbo, and Mahajan 1990; Lilly and Krishnan 1996; Lilly and Walters 1997). That is, the preannouncements are more likely to be earlier; the preannounced messages clearer, more uniform, and more abundant; the preannouncing visibility and frequency higher.

H7: As the newness of a preannounced product increases, (1) the clarity of the preannounced messages increases; (2) the uniformity of the preannounced

message increases; (3) the message content contained in the preannouncements increases; (4) the preannouncing visibility increases; (5) the preannouncing frequency increases; (6) the earliness of preannouncing timing increases.

3.5.2 Firm Characteristics

Firm Size

The occurrence of antitrust charge represents a latent concern for preannouncing new products (Heil and Langvardt 1994). A large firm may be accused of antitrust action because of its predatory behaviour in signalling the future availability of a new product far in advance of the actual market introduction (Eliashberg and Robertson 1988). Potential antitrust risks can change firms' market behaviour. For instance, their marketing actions may be delayed or abandoned (Heil and Langvardt 1994). Accordingly, legal concerns lead large firms to become more conservative in their preannouncing behaviours. They are more inclined to conduct late preannouncements with ambiguous and limited messages. The preannouncements are more likely to be disseminated less frequently. Most often, large firms will preannounce messages that reflect real product-related situations lest deceptive signalling may damage their image or reputation. On the other hand, large firms tend to enjoy better performance in their marketing actions. The advantage of large firms usually comes from their superior resources, managerial capability,

established reputation, and command over distribution channels (Soni, Lilien, and Wilson 1993).

H8a: As the size of a preannouncing firm increases, (1) the clarity of the preannounced messages decreases; (2) the truthfulness of the preannounced messages increases; (3) the message content contained in the preannouncements decreases; (4) the frequency of preannouncing decreases; (5) the earliness of preannouncing timing decreases.

H8b: As the size of a preannouncing firm increases, the preannouncing effectiveness increases.

Product Category Strength

The construct of product category strength, reflecting competitive power within the product category, comprises market share, perceived leadership, and perceived dominance within the product category (Eliashberg and Robertson 1988; Eliashberg, Robertson, and Rymon 1995). Firms with high product category strength face a higher risk of suffering from product line cannibalisation (Eliashberg and Robertson 1988). Due to product obsolescence (Levinthal and Purohit 1989), the preannouncements which claim future product improvement may tempt consumers to delay or skip their purchase of the firm's current products and wait for the next generation (Brockhoff and Rao 1993; Heil and Robertson 1991). The cannibalisation

effect can damage the sales and profit of the firm's existing products and cause inventory problems as to dealing with unsold products (Lilly and Walters 1997).

If there exists high risks of cannibalisation, a firm will be more likely to shorten the preannouncing duration (Lilly and Walters 1997) and limit the media exposure lest consumers abandon its current products prematurely. The preannounced messages may be more restricted and ambiguous because the firm is afraid that too precise, abundant product-related messages may induce high expectations of consumers for the new products, so they may stop their purchase immediately to wait for the preannounced one. However, despite this, stronger firms enjoy greater audience attention to its communication efforts even though they tend to be more scrupulous in the preannouncing.

H9a: As the product category strength of a preannouncing firm increases, (1) the clarity of the preannounced messages decreases; (2) the uniformity of the preannounced messages decreases; (3) the truthfulness of the preannounced messages increases; (4) the message content contained in the preannouncements decreases; (5) the visibility of the preannouncements decreases; (6) the frequency of the preannouncements decreases; (7) the earliness of preannouncing timing decreases.

H9b: As the product category strength of a preannouncing firm increases, the preannouncing effectiveness increases.

Market Orientation

Narver and Slater (1990) define market orientation as the involvement in intelligence generation and dissemination and managerial action which is associated with three behavioural dimensions--customer orientation, competitor orientation, and inter-functional co-ordination. In other words, a market-oriented firm is the one in which the three core marketing concepts (customer orientation, competitor orientation, and inter-functional co-ordination) are operationally manifest (cf. Kohli and Jaworski 1990). Owing to customer and competitor orientations, market-oriented firms are more inclined to engage in acquiring information about the buyers and competitors in the market, and they act more quickly on market information (Kohli and Jaworski 1990). In the new product development process, interfunctional coordination, mainly between R&D and marketing departments, heavily rests on information sharing at different development stages (Craig and Hart 1992). Hence, the marketing department must collect and transfer information about user needs, competition, or other market characteristics to the R&D department.

Market-oriented firms tend to manipulate new product preannouncements to seek both customer and competitor responses. In general, early preannouncements with high exposure, sufficient cues, and unambiguous messages are more likely to be adopted for feedback purposes. As market orientation has positive impacts on a variety of new product development process activities, such as proficiency of pre-development activity, proficiency of launch activity, marketing synergy, and inter-

functional teamwork (Atuahene-Gima 1995), it is also expected that market orientation positively influences the outcome of new product preannouncement.

H10a: As the market orientation of a preannouncing firm increases, (1) the clarity of the preannounced messages increases; (2) the uniformity of the preannounced messages increases; (3) the message content contained in the preannouncements increases; (4) the visibility of the preannouncements increases; (5) the frequency of the preannouncements increases; (6) the earliness of preannouncing timing increases.

H10b: As the market orientation of a preannouncing firm increases, the preannouncing effectiveness increases.

3.5.3 Market Characteristics

Network Externality

The presence of network externality implies that a user who switches to a newer, superior product cannot obtain its full benefits unless other current users switch to and new users adopt the new product as well (Capello 1994; Katz and Shapiro 1986). In economic terms, network externality refers to the phenomenon in which a consumer's utility of a new product is proportional to the number of other consumers that have purchased the product (Katz and Shapiro 1986). Such a phenomenon is especially salient in industries related to electronics, communications,

or information systems, like VCRs, personal computers, and facsimile machines (Gatignon and Robertson 1991; Robertson, Eliashberg, and Rymon 1995).

Preannouncing new products may be of great value in generating an installed base, helping consumers reduce their fear of being early adopters. In addition, new product preannouncement may also encourage competitors to follow a particular product standard. Compatible designs are particularly desirable in industries subject to network externality (Robertson, Eliashberg, and Rymon 1995). A study by Farrel and Saloner (1986) shows that, in the context of significant network externalities, new product preannouncements can raise the probability of success for a new technology. Early, clear, uniform, and truthful preannouncements with high frequency and abundant cues may provide consumers with the knowledge to accelerate their future adoption; competitors with the industry guidelines or standards to follow; supporting firms with enough lead time and information to develop and complete complementary products by the product launch; opinion leaders with highly complicated messages or concepts to generate their favourable word-of-mouth. Such preannouncements, to a great extent, may engender a market environment conducive to the acceptance of a new product (Wind and Mahajan 1987). Hence, it is hypothesised that

H11: As the network externality of the market where a preannounced product will be launched increases, (1) the clarity of the preannounced messages increases; (2) the uniformity of the preannounced messages increases; (3) the truthfulness of the preannounced messages increases; (4) the message

content contained in the preannouncements increases; (5) the frequency of the preannouncements increases; (6) the earliness of preannouncing timing increases.

Competitive Hostility

Among all the risks of preannouncing new products, perhaps the most salient one is to give competitors cues by which they can counterattack the preannouncer's market entry moves quickly and effectively (Heil and Robertson 1991). This risk most often occurs when new products are preannounced in a highly competitive market. Inevitably, a preannouncing firm has to consider the negative impacts of competitive cueing on its motives for achieving a competitive strike (Eliashberg and Robertson 1988).

In the study of Preukschat (1992), 23% of preannouncing firms took measures to avoid releasing information too early to competitors. Preannouncing new products too early would allow competitors enough time to formulate defence strategies and deploy resources to react to the preannouncer's launch. As a matter of fact, preannouncements carrying precise hints of future products to competitors at inappropriate times may increase the likelihood of product failure (Brockhoff and Rao 1993). If the competitors choose to retaliate the preannouncing firm, highly detailed messages may provide them with too many clues about the firm's new product programme. Thus, when the market is highly competitive, a preannouncer may prefer to send preannouncements carrying few, unclear, and inconsistent messages exposed

with less visibility and frequency. In a similar vein, the preannounced messages under a highly competitive condition would be less truthful (Heil and Langvardt 1994).

H12: As the competitiveness of the market in which a preannounced product will be introduced increases, (1) the clarity of the preannounced messages decreases; (2) the uniformity of the preannounced messages decreases; (3) the truthfulness of the preannounced messages decreases; (4) the message content contained in the preannouncements decrease; (5) the visibility of the preannouncements decreases; (6) the frequency of the preannouncements decreases; (7) the earliness of preannouncing timing decreases.

Market Turbulence

Market turbulence refers to "the rate of change in composition of customers and their preferences" (Jaworski and Kohli 1993; Kohli and Jaworski 1990). Customer demand fluctuates dramatically in a market characterised by high market turbulence, to which the firms in the market must adjust (Calatone, di Benedetto, and Bhoovaraghavan 1994). The instability and dynamism of the market, in a sense, represent business opportunities for the firms which hope to change customer attitude and behaviour in their favour. Hence, it is more likely to observe frequent new product introductions in a turbulent market (Calantone and Cooper 1981). In such a

market, the firms planning to introduce new products may undertake large-scale prelaunch marketing communications to develop new customers, retain current customers, or encourage the switching of the competitors' customers.

H13a: As the market turbulence of the market in which a preannounced product will be introduced increases, (1) the message content contained in the preannouncements increases; (2) the visibility of the preannouncements increases; (3) the frequency of the preannouncements increases; (4) the earliness of preannouncing timing increases.

Technological Turbulence

How rapidly technology in a market changes can be captured by the construct of technological turbulence (Jaworski and Kohli 1993). When a market is technologically turbulent, firms are more likely to conduct early new product preannouncements for reducing innovation resistance, pre-empting competitors, setting specification standard, seeking the feedback of industry experts, or creating a cutting-edge image. Nevertheless, many preannounced products in technologically fast-changing industries, such as computer software, may never be available in the market (Brockhoff and Rao 1993). The realisation of preannounced products depends on their technological characteristics. Technological uncertainty (Ali 1994) can lead firms to preannounce their products with restricted content and in a vague and inconsistent fashion, so the firms may lessen the risk of failure in delivery. Moreover,

the truthfulness of preannounced messages abates in that the firms in technologically turbulent markets may be more inclined to bluff about introducing new products which are technologically infeasible or uncertain (Brockhoff and Rao 1993; Eliashberg, Robertson, and Rymon 1995).

H14a: As the technological turbulence of the market in which a preannounced product will be introduced increases, (1) the clarity of the preannounced messages decreases; (2) the uniformity of the preannounced messages decreases; (3) the truthfulness of the preannounced messages decreases; (4) the message content contained in the preannouncements decreases; (5) the earliness of preannouncing timing increases.

3.6 Summary

This chapter elaborates on the research hypotheses based on the conceptual framework proposed in Chapter 2. The hypotheses reflect the underlying theme that new product preannouncing behaviours influence the preannouncing effectiveness and are influenced by situational factors including brand/product, firm, and market characteristics. The characteristics of brand/product and firm also have direct impacts on the effectiveness. Media emphasis and media favourability serve as control variables for the relationships between the effectiveness and its antecedents.

All the proposed hypotheses are summarised in Table 3.1. The hypotheses are further translated into a path diagram that represents the model of the research hypotheses. Figure 3.1 illustrates the hypothesised model. The solid lines in the

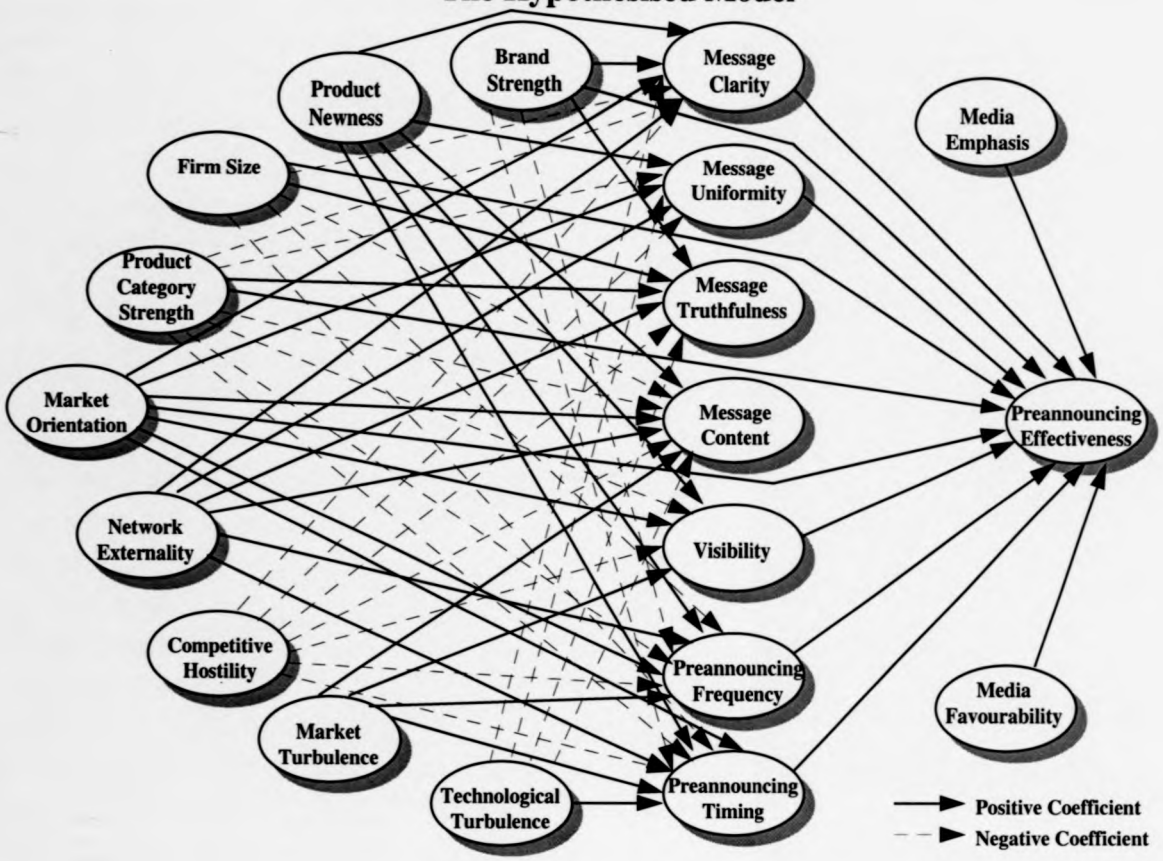
model refer to positive hypothesised relationships between constructs. In contrast, the dashed lines indicate negative relationships. The model will be operationalised for hypothesis testing, which will be addressed in the following chapters.

Table 3.1
Summary of the Proposed Hypotheses

Endogenous Constructs	Endogenous Constructs							
	PE	MC	MU	MT	CO	VS	PF	PT
Preannouncing Effectiveness (PE)								
Message Clarity (MC)	+							
Message Uniformity (MU)	+							
Message Truthfulness (MT)								
Message Content (CO)								
Visibility (VS)	+							
Preannouncing Frequency (PF)	+							
Preannouncing Timing (PT)	+							
Exogenous Constructs								
Brand Strength	+	+		+			–	–
Product Newness		+	+		+	+	+	+
Firm Size	+	–		+	–		–	–
Product Category Strength	+	–	–	+	–	–	–	–
Market Orientation	+	+	+		+	+	+	+
Network Externality		+	+	+	+		+	+
Competitive Hostility		–	–	–	–	–	–	–
Market Turbulence					+	+	+	+
Technological Turbulence		–	–	–	–			+
Media Emphasis*	+							
Media Favourability*	+							

* The direction of relationship expected but no hypothesis provided

Figure 3.1
The Hypothesised Model



Chapter 4

Methodology

4.1 Introduction

The prevalence and importance of new product preannouncement and its role in new product development were discussed in the previous chapters. The literature review provided a theoretical background for this research. It also established a conceptual framework from which the research hypotheses are derived to link the strategic behaviours of new product preannouncement with their situational factors and effectiveness. This chapter describes the research design and procedures for collecting the data which will be used to test the hypotheses.

The remainder of this chapter is organised as follows: First, Section 4.2 describes the justification for the use of survey methods for this research. An overview of the questionnaire survey used for collecting the data is also described. Next, Section 4.3 discusses the sample design with respect to sampling frame, sample size and sample selection procedures. The following two sections centre on operationalisation of the constructs for hypothesis testing. Section 4.4 concerns the design of the research instrument--a questionnaire. The measures for all the constructs in the research are described in Section 4.5. Finally, the data collection procedure is explained in Section 4.6, covering the steps of data collection and the methods for soliciting cooperation and securing an acceptable response rate.

4.2 Use of A Postal Survey

The basic research design involved a cross-sectional field study into new product preannouncing phenomena in the United Kingdom. A survey was specifically designed to fit the context of this research and employed to acquire the data needed for testing the hypothesised model. Data collection through a survey was justified for two reasons: (1) relevant secondary data were not available for use (Fowler 1993) and (2) questioning of knowledgeable respondents has been proven as the most efficient and economical way to collect information (Green, Tull, and Albaum 1988). The survey was executed by mail, which is a widely used method for obtaining data from an industrial population (Forsythe 1977; Jobber 1989). However, the most serious problem associated with the mail survey is that it is more likely to yield a relatively low response rate compared with other survey methods (Diamantopoulos and Schlegelmilch 1996; Goodstadt, Chung, Kronitz, and Cook 1977) Two issues may arise as a result of a lower response rate: possible nonresponse bias (Armstrong and Overton 1977; Yu and Cooper 1983) and relatively high survey costs (Walker and Burdick 1977). Despite its drawback, the mail survey was deemed as appropriate for the current research in the sense that a trade-off had to be made between the maximisation of response rates and the time and resources involved in achieving it.

The unit of analysis in this research is an individual new product, rather than a firm or a business unit. The data collection procedures involved the use of the key informant method, which requires that informants be chosen based on such

qualifications as knowledgeability of the issues of interest in the study or formal organisational positions (Bagozzi, Yi, and Philips 1991). Key informant methods have been widely used in organisational studies in a variety of areas such as industrial marketing and strategic planning (Philips 1981). Based on Campbell's (1955) criteria, the key informants in this survey were managers who were responsible for, or highly involved in, introducing new products. One informant per unit of analysis would be identified from respective firms as a legitimate and qualified respondent. The informants were requested to provide information at the aggregate, i.e., product or organisational, level rather than at the individual, or personal, level (Seidler 1974). A structured questionnaire (see Appendix A) served as the survey instrument. Next, the design of the survey will be discussed with respect to sampling, questionnaire design, and questionnaire administration.

4.3 Sampling

A sampling plan was designed to collect the primary data from the sample specified for the research. The data were calculated into statistics to make inferences about the relevant population (Yu and Cooper 1983). There are three critical issues concerning sampling: sampling frame, sample size, and the sample selection process (Churchill 1995; Green, Tull, and Albaum 1988).

4.3.1 Sampling Frame

The sampling frame of the research includes a broad spectrum of industries in which new product preannouncing phenomena are prevalent and salient (Eliashberg

and Robertson 1988; Robertson, Eliashberg, and Rymon 1995). Specifically, the heterogeneous set of industries encompasses automobiles, chemicals and pharmaceuticals, communication equipment, computers, electric machinery and electronic apparatus, machinery and equipment, medical and precision instruments. They represent the industries to which the results of the research may be potentially generalisable (Green, Barclay, and Ryans 1995).

A list of firms in the specified industries was obtained from the 1998 version of OneSource database, which covered companies operating within the United Kingdom. In total, the frame consisted of 25,037 firms. Table 3.1 illustrates the breakdown of the numbers of firms by industry. The multi-industry design allowed for selecting a variety of firms from systematically different organisational and market environments. Such a design was adopted to bring in substantial variability of relevant constructs, which is desirable to the model validation (cf. Singh 1993). As a cross-sectional study, this research placed emphasis on sampling firms from various industries so that the sampled firms were representative of the population of interest (Churchill 1995). Nevertheless, two major kinds of inherent errors are associated with this research: random sampling error and nonresponse error (Zikmund 1989). The first error is caused by chance variation, which may result in a sample that does not represent the target population. Such an error is inevitable in sample survey research. The second error is caused by nonrespondents who may differ from the respondents in some significant way. The issue of possible nonresponse error in this study will be discussed in Section 5.2.3.

Table 4.1
The Sampling Frame and Sample Size

Industries	Population	Sample
1. Automobiles	827	120
2. Chemicals and Pharmaceuticals	2,561	145
3. Communication Equipment	1,465	140
4. Computers	10,324	160
5. Electric and Electronic Products	2,532	145
6. Machinery and Equipment	5,387	150
7. Medical and Precision Instruments	1,941	140
Total	25,037	1,000

4.3.2 Sample Size

The sample size of this research was 1,000. The sample size decision was made to meet both theoretical requirements and practical limitations. The sample size was considered reasonable to obtain sufficient data for later analysis, taking in account the time and costs involved in the postal survey. The expected response rate was 20%, set to reflect the typical rates of response for industrial marketing research field study (Jobber and O'Reilly 1998) and to match the response rates in other relevant studies (e.g., Eliashberg, Robertson, and Rymon 1995; Robertson, Eliashberg, and Rymon 1995).

4.3.3 Sample Selection

The sample survey was conducted in accordance with stratified random sampling method. One thousand firms were selected out of the sampling list. Industry type was used as the basis for stratification. As such, the sampling frame was divided into seven strata before the sampling was conducted. A simple random sample of roughly equal number of firms was drawn from each stratum (see Table

3.1). In this research context, partitioning the population into strata in advance of random sampling served to reduce sampling error (Churchill 1995) and to increase the precision of estimates of variables related to the industry types (Fowler 1993).

The final sample covered companies, the annual sales turnover of which ranged from UK £12,000 to UK £7.8 billion, with a mean of UK £182 million. Pre-tax profit varied from UK £-139 million to UK £1.65 billion, and its mean was UK £14.3 million. Net worth was from UK £-370 million to UK £9.7 billion, with a mean UK £36.3 million. The number of employees was from one to 55,400, with a mean value around 1,221.

4.4 Questionnaire Design

A clear, explicit specification of theoretical construct definitions and operationalisations is a premise of achieving empirical testability, verifiability and confirmability (Hughes, Price, and Marrs 1986). A multi-item scale development process suggested by Churchill (1979) began with consulting the extant literature in relevant areas, such as (new product) preannouncing behaviour, marketing communications, and product management. The literature review helped specify the domains of respective constructs of interest. Dimensions of the constructs as well as tentative measurement items were either borrowed from the existing scales or derived from relevant concepts or theories in which the constructs are embedded. The literature search provided a conceptual basis of construct validity, which is a necessary condition for theory development and testing (Peter 1981).

A pilot study involving personal interviews was conducted to ascertain that the questionnaire met the needs of this research. It served to collect managers' ideas and to give insight into the phenomenon of interest. Moreover, pretests were executed to further refine the measures and confirm the appropriateness of the questionnaire (Hunt, Sparkman, and Wilcox 1982). The pretesting results were used to guide the development of the methods to improve response rate. The next three sections will discuss the pilot study, pretest, and questionnaire structure in greater detail.

4.4.1 Pilot Study

The pilot study had three objectives: (1) to ascertain that the literature review matched business practices; (2) to gain managerial insights for the development of the conceptual framework; (3) to ensure that all the elements in the survey fit the research setting. Seven managers were randomly selected from the sampling frame. They were first asked to cooperate and then personally interviewed. These managers were identified as key informants for they were highly involved in new product preannouncement activities. The industries where the interviewees' companies were operating matched the ones selected for the sample survey. Each interview lasted about one hour and all interviews were recorded verbatim.

In the personal interviews, the interviewees were asked to consider their firms' most recently preannounced new products and to describe the preannouncing activities and processes in detail. The foci of the interviews were on the target audiences toward which the preannouncements were disseminated; the strategic objectives of conducting the preannouncements; the messages released through the

preannouncements; the ways by which the companies preannounced the new products; factors that influenced the preannouncing decisions. The interviews showed substantial management interest in the research topic and the prevalence of new product preannouncement within the U.K. industries. The findings, grasping a sense of reality, were used to fine-tune the conceptual framework and to guide the current research design.

4.4.2 Pretest

A series of pretests were adopted to further refine the questionnaire, measures, and methods of data collection. The first phase of pretests was administered through personal interviews with managers in seven companies selected from the specified industries, who were representative of the target respondents. The managers were asked to fill out the questionnaires and then comment on the clarity and relevance of respective measures as well as the format of the questionnaire. According to the researcher's observation, the respondents showed no difficulty answering the questions. On average, it took them 25 minutes to complete the survey instrument. The time consumption was deemed reasonable given the length and complexity of the questionnaire. The suggestions from the interviewees led to several minor changes in wording for clarification. The question sequence was slightly modified as well.

Following this first phase, the questionnaire was further pretested by means of mail to examine its performance under actual conditions of data collection (Churchill 1995). The mail pretests were designed with a view to uncovering potential problems regarding the mode of questionnaire administration in the full-scale study. A

stratified random sample of 200 firms was chosen from the surveyed industries. In advance of mailing the questionnaires, telephone pre-notification was employed to contact the respondents, asking for their participation. Two hundred questionnaires were subsequently sent, along with a cover letter and a freepost return envelope, to each of the participants who had agreed to cooperate in the study.

Thirty eight questionnaires were returned in total. Of these, twenty two questionnaires were from the companies involved in preannouncing new products and therefore regarded as usable. The size of the pretest sample, though not large, was adequate in accordance with the suggestions of Hunt, Sparkman, and Wilcox (1982). The completed questionnaires demonstrated that the questionnaire was valid, comprehensible, and useful for collecting the desired information. However, the nonresponses indicated a concern for future data collection. The low response rate (19%) in the pretesting might be attributed to the time gap between telephone pre-notification and questionnaire mailing and the length and complexity of the questionnaire. Non-usable questionnaires were mainly caused by missing data on key measures, the respondents' reluctance to complete the questionnaire, or no preannouncing activities being conducted by the firms. It was realised that non-preannouncing firms or irrelevant respondents were accidentally included in the mail pretests, despite certain efforts put into screening the participating companies and contacting the respondents throughout the telephone contacts. Such mistakes were, to some extent, inevitable given the time limit in the telephone conversations to clear description and explanation of the survey.

Based on the results of the pretest, the final data collection process was adjusted to cope with the problems of low response rate and inappropriate participants. Remedies like instant, and two mailings and telephone content revision were employed (see Section 4.6 for further details). Moreover, the questionnaire itself was improved by way of tightening the scales and eliminating unnecessary and confusing items. Although changes were not substantive, such efforts did result in a revised questionnaire of reasonable length that minimised respondent fatigue.

4.4.3 Questionnaire Structure

The survey instrument was basically designed into a structured questionnaire. Nevertheless, it also contained several open-ended questions with respect to product and brand names, product category, preannouncing timing, and company and respondent information. The length of the final, refined instrument was 10 pages. It started with instructions to the respondents, along with the definition of new product preannouncement. Following the instructions, the respondents were asked to give their answers that would reflect the conditions their companies faced and the decisions the companies made. A branching design was used to direct the respondents to the section that asks for company information even if their companies had not ever engaged in any new product preannouncement.

In terms of organisation, the questionnaire consisted of six categories of questions regarding new product preannouncing behaviour. The question sequence was based on the guidelines suggested by Churchill (1995) and the results of the pilot

study and pretests. Questions were given in the following order: product and brand, the execution of the preannouncement, the objectives and evaluation of the preannouncement, and market, company, and basic information. For instance, the respondents were asked at the beginning to recall the most recent new product their firms preannounced. Questions concerned with the focal product and the brand associated with it were addressed subsequently. In the next section, each of the constructs and corresponding measures will be discussed in detail.

4.5 Measures of the Research

The measures for the constructs that compose the research hypotheses were honed after the aforementioned processes of measure development. Basically, the research followed Churchill's (1979) approach to developing construct measures in that the measurement indicators in this study were mainly effect indicators as opposed to causal indicators (Bollen and Lennox 1991). Most of the measures were perceptual, which captured managers' perceptions of internal and external environments and of the execution and performance of strategy. Certain measurement items were scale-reversed to improve the psychometric properties of the measures (Kohli 1989). The final instrument consisted of measures that may be categorised into four groups in light of their positions in the conceptual framework. Accordingly, discussion of these measures is organised as follows: measures of situational factors; measures of new product preannouncing behaviours, measure of preannouncing effectiveness, and measures of media reactions.

4.5.1 Measures of Situational Factors

Brand/Product Characteristics

Brand strength. This construct captures customer predisposition toward the focal brand (Smith and Park 1992). Six items assessed brand recall, brand recognition (Francois and MacLachlan 1995) and favourability of association (Aaker and Keller 1990), and purchase behaviour-intention (Srivasta and Shocker 1991). The respondents were asked to indicate the degree to which they agree with the items on seven-point Likert scales where 1 = strongly disagree and 7 = strongly agree. Specifically, the measurement items are illustrated as follows:

1. People tended to mention the brand name first when thinking of the product category.
2. People always stated that they had heard of the brand when they were given its name.
3. The level of quality customers associated with the brand was very high.
4. Customers regarded the brand as a very low-value brand. (Reverse)
5. Customers were highly willing to use the brand.
6. The brand had a loyal customer base.

Product newness. The construct of product newness was measured in terms of the product's newness to customers (Atuahene-Gima 1995). The newness to customers was assessed by a set of six items, on 7-point strongly disagree/strongly agree scales, as follows:

1. It required a major learning effort by customers.
2. It took a long time before customers could understand its full advantages.
3. The product concept was difficult for customers to evaluate or understand.
4. Customers were always engaged in advance planning for adopting it.

5. It involved high switching costs for the customer.
6. The product was one of the most complex products we had ever introduced into the market.

Firm Characteristics

Firm size. The number of full-time employees was the proxy for firm size. Many studies suggest that the number of employees is a reliable and commonly-used indicator of organisational size (e.g., Cavusgil and Zou 1994; Smith, Gurthrie, and Chen 1989; Soni, Lilien, and Wilson 1993). The respondents were asked to report the number of employees in their companies by answering an open-ended question.

Product category strength. The construct of product category strength was operationalised as a 4-item scale adapted from Eliashberg and Robertson (1988) and Eliashberg, Robertson, and Rymon (1995). The scale reflected the perceived product category market share and perceived leadership/followership position. 7-point Likert scales ranging from strongly disagree to strongly agree were used for all the items below.

1. We had one of the highest market shares in this product category.
2. We always followed larger competitors' market moves. (Reverse)
3 Our competitors were relatively weaker in terms of competitive power in the product category.
4. We enjoyed a leading position in the product category.

Market orientation. The construct of market orientation was operationalised as a 14-item multidimensional scale adapted from Greenley (1995) and Narver and Slater (1990). Three subscales underly the measure of this construct: customer orientation (six items), competitor orientation (four items), and interfunctional

coordination (four items). The customer orientation subscale measured the firm's understanding of target customers. The 4-item subscale of competitor orientation assessed the managerial activities involved in acquiring and disseminating competitor information. The third subscale captured coordinated utilisation of company resources in creating superior value for target customers. A 7-point scoring format (1 = strongly disagree; 7 = strongly agree) was used for all aforementioned items.

Customer Orientation

1. Business objectives were driven by customer satisfaction.
2. Commitment to serving customer needs was monitored.
3. Our competitive strategies were based on understanding customer needs.
4. Strategies were driven by our beliefs about creating customer value.
5. Customer satisfaction was frequently and systematically measured.
6. Close attention was given to after-sales service.

Competitor Orientation

7. Our salespeople shared information on competitors' strategies.
8. We responded quickly to competitors' actions.
9. Top Managers regularly discussed competitors' strengths and weaknesses.
10. We targeted opportunities which led to competitive advantage.

Interfunctional Coordination

11. Managers from different functional departments regularly visited customers.
12. Information about customer experiences was always communicated and shared among different functional departments.
13. Business functions were integrated to serve target market needs.
14. Managers understood how everyone could contribute to creating customer value.

Market Characteristics

Network externality refers to the extent to which the customer benefits and perceived switching costs depend on the number of other customers purchasing compatible products. In the context of this research, a 5-item scale was developed to capture this construct from the relevant literature (Church and Gandal 1993; Farrel and Saloner 1986; Katz and Shapiro 1992; Thum 1994). The respondents were asked about their views of various phenomena pertaining to network externality in the industries where their companies were operating. Again, all items were scored on 7-point scales with a range from "strongly disagree" to "strongly agree".

1. A potential customer's adoption of a new product was influenced by the number of current users of the existing or compatible products.
2. The risks of adopting a product for non-users decreased as the number of its current adopters increased.
3. Compatible designs were particularly desirable in the industry.
4. In the market, customers tended to stick to incumbent technologies.
5. A product in the market became more valuable as the number of adopters of the product increased.

Competitive hostility indicates the combativeness of the product category competitors (Eliashberg and Robertson 1988). A self-rated 5-item scale of competitive hostility adapted from Atuahene-Gima (1995), Eliashberg and Robertson (1988), Jaworski and Kohli (1993), and Slater and Narver (1994) was used to assess the breadth and aggressiveness of competitive actions. All scores were reported on 7-point "strongly disagree-strongly agree" Likert scales.

1. Competition in the market was cut-throat.

2. Competitors were always able to match their opponents' market attacks readily.
3. Competition existed in a variety of aspects, e.g., pricing, quality, service, etc.
4. Price competition was a hallmark of the market.
5. There were frequent product introductions or modifications.

Market turbulence. The market turbulence construct was captured based on the measures developed by Jaworski and Kohli (1993) and Gatignon and Xuereb (1997). The 6 Likert items captured the extent to which customers' composition, preferences, and demand levels are changeable and unpredictable. Specifically, the items are shown below.

1. For this business, customers' product preferences changed quite a bit over time.
2. Our customers tended to look for new products all the time.
3. New customers tended to have product-related needs that are different from those of our existing customers.
4. We actually catered to many customers that we have served in the past. (Reverse)
5. Demand was fairly easy to forecast in this market. (Reverse)
6. The changes in customer preference over time were difficult to predict in this market.

Technological turbulence indicates the rapidity of technology change in a market (Jaworski and Kohli 1993). This construct composed of five seven-point Likert items representing the managers' perceptions of the extent to which technology in a market changed over time. The respondents expressed their dis/agreements with the following statements linking the measurement items on 7-point Likert scales.

1. The technology in our industry was changing rapidly.
2. Technological changes provided big opportunities in our industry.
3. It was very difficult to forecast where the technology in our industry would be in the next 2 to 3 years.
4. A large number of new product ideas had come from technological breakthroughs in our industry.
5. Technological developments in our industry were only minor. (Reverse)

4.5.2 Measures of New Product Preannouncing Behaviours

Preannouncing timing refers to the time point when a firm intentionally begins to communicate new product-related messages to the external environment prior to the launch of the new product. Hence, it was measured as the duration between the first deliberate dissemination of the messages before launch and the formal market introduction of the new product. Responses to the question were given in terms of days, weeks, months, or years.

Strategy of Communication Channel

Visibility. The visibility construct was measured by four items on seven-point Likert scales. Adapted from Eliashberg, Robertson, and Rymon's (1995) research, these items were used to assess the extent to which the new product preannouncement was publicised (Smith and Grimm 1996).

1. We preannounced the product in the communication channels aimed at a broad audience.
2. We used informal communication channels for the preannouncement. (Reverse)
3. We sent the preannounced messages via media which were more visible in the marketplace.

4. The communication channels chosen were industry-specific. (Reverse)

Frequency reflects how often a firm sends new product-related messages within the preannouncing period. It was operationalised as an average score of each respondent's evaluation on how frequently his or her firm disseminated the preannounced messages across the communication channels that were considered important by the firm (cf. Meznar and Nigh 1995; Mohr, Fisher, and Nevin 1996). The importance of twelve communication channels, listed as below, was assessed on 7-point scales ranging from 1 = "not at all important" to 7 = "extremely important." The communication channels with scores greater than or equal to four were classified as important. Likewise, how often the firm conducted the preannouncements through the communication channels was reported on 7-point extremely infrequently/extremely frequently scales.

1. Press Announcements
2. Trade Publications
3. Trade Shows and Conferences
4. Business Meetings
5. Speeches
6. Word of Mouth
7. Memorandums
8. Annual Report
9. Magazines
10. Newspaper
11. Direct Mail
12. Internet

Message Strategy

Message clarity. Referred to as the degree of unequivocality in the preannouncements (Heil and Robertson 1991; Eliashberg, Robertson, and Rymon 1995), message clarity was measured using five items. 7-point strongly disagree/strongly agree scales were used to record managers' judgments.

1. The preannouncements we made were kept ambiguous. (Reverse)
2. We communicated the messages in a precise way.
3. We avoided vague expression in the preannouncements.
4. The preannouncements were stated as specifically as possible.
5. Explicit information was conveyed in the preannouncements.

Message uniformity. Message uniformity is conceptualised as the similarity and consistency of different preannounced messages pertaining to a new product. In the research, the construct of message uniformity was measured with a 5-item scale developed from the studies of Heil and Robertson (1991) and Lily and Walters (1997). The respondents were asked to report the levels of their dis/agreements with the statements corresponding to these items on 7-point Likert scales.

1. The preannounced messages were consistent with one another from beginning to end.
2. We sent dissimilar messages in different preannouncements. (Reverse)
3. We varied messages when they were conveyed to different audiences. (Reverse)
4. In the meantime, the messages preannounced in different markets were uniform.
5. Late preannouncements did not contradict early preannouncements.

Message truthfulness indicates how real the preannounced messages reflect the situations concerned with the new product. This construct was captured using a 5-item scale developed from the literature (DePaulo 1988; Eliashberg, Robertson, and Rymon 1995; Heil and Robertson 1991). All responses were made on 7-point Likert scales.

1. We conveyed messages that reflected the facts about the new product.
2. Bluffs were very commonly used in the messages contained in the preannouncements. (Reverse)
3. The preannouncements were truthful indications of our future plan or actions.
4. The preannouncements contained false messages. (Reverse)
5. All the preannounced messages were verifiable.

Message content. Message content was measured by an assessment of the degree to which the preannouncements communicated various cues about the focal products. In total, twelve cues (below) were used to represent the message elements contained in new product preannouncements. Responses were reported on 7-point scales ranging from 1 (never conveyed) to 7 (fully conveyed).

1. Price or value;
2. Quality;
3. Performance;
4. Features or components;
5. Availability;
6. Special offer;
7. Brand name;
8. Package or shape;
9. Guarantee or warrantees;

10. Research findings;
11. New ideas;
12. Launch plan.

4.5.3 Measures of Preannouncing Effectiveness

The effectiveness of new product preannouncement was captured in terms of three perceived performance measurement scales (cf. Smith, Guthrie, and Chen 1989; Song and Parry 1997): (1) objective-attainment performance, (2) the performance relative to the previous preannouncements, and (3) the performance relative to key competitors' preannouncements. The objective-attainment performance was measured as the extent to which a firm achieved its strategic preannouncing objectives, weighted by the relative importance of the objectives (cf. Cavusgil and Zou 1994; Dacin and Sharfman 1996). Importance of new product preannouncing objectives was measured using the constant sum method (Green, Tull, and Albaum 1988). The respondents were instructed to choose the objectives of preannouncing the focal products, and then allocate 100 points among the selected objectives in terms of their relative importance. The extent of objective attainment was rated on 7-point scales where 1 = "did not at all attain objectives" and 7 = "completely attained objectives." All objectives for choice are listed as follows.

1. Evoke curiosity and interest;
2. Enhance customer learning;
3. Reduce customer adoption resistance;
4. Lower customer switching costs;
5. Encourage purchase delay for currently available products;
6. Enhance your company's image;
7. Pre-empt competitors;

8. Seek competitive norms of conduct;
9. Counterattack competitive moves;
10. Obtain support of distributors;
11. Stimulate the generation of complementary products;
12. Gain favourable word of mouth;
13. Impress current and potential shareholders;
14. Seek customers' feedback;
15. Observe competitors' reaction;
16. Seek feedback from those other than customers and competitors.

Two other scales were also employed to measure the effectiveness of new product preannouncement. The respondents were asked to compare the success of their firms' new product preannouncements with the success of their previous ones and with the success of their competitors' (cf. Cavusgil and Zou 1994; Jaworski and Kohli 1993). The comparisons were rated on 7-point scales (1 = extremely unsuccessful and 7 = extremely successful). Eventually, the values of these three scales were averaged for the measure of new product preannouncing effectiveness.

4.5.4 Measures of Media Reactions

Media emphasis refers to the extent to which the media pay attention to a firm's new product preannouncements. The scale of this construct consisted of four measurement items developed from Cutlip, Center, and Broom (1994). Again, 7-point Likert scales (1 = strongly disagree and 7 = strongly agree) were used to record the scores of these items.

1. The preannouncement generated major media coverage.
2. The preannouncement attracted little attention from the media. (Reverse)
3. Most of the media highlighted the preannouncement.

4. The media emphasis on our preannouncement was relatively greater than on our competitors'.

Media favourability. The construct of media favourability was operationalised as a 4-item, 7-point Likert scale. The scale measured how favourable the media coverage was toward the new product preannouncement. The measurement items were developed based on the relevant literature in public relations and mass communication (e.g., Fill 1995; Marken 1988).

1. The media made supportive remarks about the focal product.
2. The media covered our new product preannouncement favourably.
3. The media had a high opinion of the preannounced product.
4. The media coverage was consistent with what we wanted to present.

The operationalisation of the multi-item constructs in this study is summarised in Table 4.2. The sources of respective measurement items are also provided for reference.

Table 4.2
Multi-Item Constructs and Measurement Items

Constructs and Items	Source
Brand Strength	
1. People tended to mention the brand name first when thinking of the product category.	Developed from Francois and MacLachlan (1995)
2. People always stated that they had heard of the brand when they were given its name.	Developed from Francois and MacLachlan (1995)
3. The level of quality customers associated with the brand was very high.	Developed from Aaker and Keller (1990)
4. Customers regarded the brand as a very low-value brand. (Reverse)	Developed from Aaker and Keller (1990)
5. Customers were highly willing to use the brand.	Developed from Srivasta and Shocker (1991)
6. The brand had a loyal customer base.	Developed from Srivasta and Shocker (1991)
Product Newness	
1. It required a major learning effort by customers.	Atuahene-Gima (1995)

2. It took a long time before customers could understand its full advantages.	Atuahene-Gima (1995)
3. The product concept was difficult for customers to evaluate or understand.	Atuahene-Gima (1995)
4. Customers were always engaged in advance planning for adopting it.	Atuahene-Gima (1995)
5. It involved high switching costs for the customer.	Atuahene-Gima (1995)
6. The product was one of the most complex products we had ever introduced into the market.	Atuahene-Gima (1995)
Product Category Strength	
1. We had one of the highest market shares in this product category.	Eliashberg, Robertson, and Rymon (1995)
2. We always followed larger competitors' market moves. (Reverse)	Developed from Eliashberg and Robertson (1988)
3. Our competitors were relatively weaker in terms of competitive power in the product category.	Developed from Eliashberg and Robertson (1988)
4. We enjoyed a leading position in the product category.	Developed from Eliashberg and Robertson (1988)
Market Orientation	
1. Business objectives were driven by customer satisfaction.	Greenley (1995) and Narver and Slater (1990)
2. Commitment to serving customer needs was monitored.	Greenley (1995) and Narver and Slater (1990)
3. Our competitive strategies were based on understanding customer needs.	Greenley (1995) and Narver and Slater (1990)
4. Strategies were driven by our beliefs about creating customer value.	Greenley (1995) and Narver and Slater (1990)
5. Customer satisfaction was frequently and systematically measured.	Greenley (1995) and Narver and Slater (1990)
6. Close attention was given to after-sales service.	Greenley (1995) and Narver and Slater (1990)
7. Our salespeople shared information on competitors' strategies.	Greenley (1995) and Narver and Slater (1990)
8. We responded quickly to competitors' actions.	Greenley (1995) and Narver and Slater (1990)
9. Top Managers regularly discussed competitors' strengths and weaknesses.	Greenley (1995) and Narver and Slater (1990)
10. We targeted opportunities which led to competitive advantage.	Greenley (1995) and Narver and Slater (1990)
11. Managers from different functional departments regularly visited customers.	Greenley (1995) and Narver and Slater (1990)
12. Information about customer experiences was always communicated and shared among different functional departments.	Greenley (1995) and Narver and Slater (1990)
13. Business functions were integrated to serve target	Greenley (1995) and Narver

market needs.	and Slater (1990)
14. Managers understood how everyone could contribute to creating customer value.	Greenley (1995) and Narver and Slater (1990)
Network Externality	
1. A potential customer's adoption of a new product was influenced by the number of current users of the existing or compatible products.	Developed from Church and Gandal (1993)
2. The risks of adopting a product for non-users decreased as the number of its current adopters increased.	Developed from Farrel and Saloner (1986)
3. Compatible designs were particularly desirable in the industry.	Developed from Church and Gandal (1993)
4. In the market, customers tended to stick to incumbent technologies.	Developed from Katz and Shapiro (1992)
5. A product in the market became more valuable as the number of adopters of the product increased.	Developed from Thum (1994)
Competitive Hostility	
1. Competition in the market was cut-throat.	Jaworski and Kohli (1993)
2. Competitors were always able to match their opponents' market attacks readily.	Developed from Eliashberg and Robertson (1988)
3. Competition existed in a variety of aspects, e.g., pricing, quality, service, etc.	Developed from Slater and Narver (1994)
4. Price competition was a hallmark of the market.	Jaworski and Kohli (1993)
5. There were frequent product introductions or modifications.	Developed from Atuahene-Gima (1995)
Market Turbulence	
1. For this business, customers' product preferences changed quite a bit over time.	Jaworski and Kohli (1993)
2. Our customers tended to look for new products all the time.	Jaworski and Kohli (1993)
3. New customers tended to have product-related needs that are different from those of our existing customers.	Jaworski and Kohli (1993)
4. We actually catered to many customers that we have served in the past. (Reverse)	Jaworski and Kohli (1993)
5. Demand was fairly easy to forecast in this market. (Reverse)	Gatignon and Xuereb (1997)
6. The changes in customer preference over time were difficult to predict in this market.	Gatignon and Xuereb (1997)
Technological Turbulence	
1. The technology in our industry was changing rapidly.	Jaworski and Kohli (1993)
2. Technological changes provided big opportunities in our industry.	Jaworski and Kohli (1993)
3. It was very difficult to forecast where the technology in our industry would be in the next 2 to 3 years.	Jaworski and Kohli (1993)
4. A large number of new product ideas had come from	Jaworski and Kohli (1993)

technological breakthroughs in our industry.	
5. Technological developments in our industry were only minor. (Reverse)	Jaworski and Kohli (1993)
Visibility	
1. We preannounced the product in the communication channels aimed at a broad audience.	Developed from Eliashberg, Robertson, and Rymon (1995)
2. We used informal communication channels for the preannouncement. (Reverse)	Developed from Eliashberg, Robertson, and Rymon (1995)
3. We sent the preannounced messages via media which were more visible in the marketplace.	Developed from Eliashberg, Robertson, and Rymon (1995)
4. The communication channels chosen were industry-specific. (Reverse)	Developed from Eliashberg, Robertson, and Rymon (1995)
Message Clarity	
1. The preannouncements we made were kept ambiguous. (Reverse)	Developed from Eliashberg, Robertson, and Rymon (1995)
2. We communicated the messages in a precise way.	Developed from Heil and Robertson (1991)
3. We avoided vague expression in the preannouncements.	Developed from Heil and Robertson (1991)
4. The preannouncements were stated as specifically as possible.	Developed from Eliashberg, Robertson, and Rymon (1995)
5. Explicit information was conveyed in the preannouncements.	Developed from Eliashberg, Robertson, and Rymon (1995)
Message Uniformity	
1. The preannounced messages were consistent with one another from beginning to end.	Developed from Heil and Robertson (1991)
2. We sent dissimilar messages in different preannouncements. (Reverse)	Developed from Lilly and Walters (1997)
3. We varied messages when they were conveyed to different audiences. (Reverse)	Developed from Lilly and Walters (1997)
4. In the meantime, the messages preannounced in different markets were uniform.	Developed from Heil and Robertson (1991)
5. Late preannouncements did not contradict early preannouncements.	Developed from Heil and Robertson (1991)
Message Truthfulness	
1. We conveyed messages that reflected the facts about the new product.	Developed from Heil and Robertson (1991)
2. Bluffs were very commonly used in the messages	Eliashberg, Robertson, and

contained in the preannouncements. (Reverse)	Rymon (1995)
3. The preannouncements were truthful indications of our future plan or actions.	Developed from Eliashberg, Robertson, and Rymon (1995)
4. The preannouncements contained false messages. (Reverse)	Developed from DePaulo (1988)
5. All the preannounced messages were verifiable.	Developed from Eliashberg, Robertson, and Rymon (1995)
Media Emphasis	
1. The preannouncement generated major media coverage.	Developed from Cutlip, Center, and Broom (1994)
2. The preannouncement attracted little attention from the media. (Reverse)	Developed from Cutlip, Center, and Broom (1994)
3. Most of the media highlighted the preannouncement.	Developed from Cutlip, Center, and Broom (1994)
4. The media emphasis on our preannouncement was relatively greater than on our competitors'.	Developed from Cutlip, Center, and Broom (1994)
Media Favourability	
1. The media made supportive remarks about the focal product.	Developed from Fill (1995)
2. The media covered our new product preannouncement favourably.	Developed from Marken (1988)
3. The media had a high opinion of the preannounced product.	Developed from Fill (1995)
4. The media coverage was consistent with what we wanted to present.	Developed from Fill (1995)
Preannouncing Effectiveness	
1. Objective-Attainment Performance	Developed from Dacin and Sharfman (1996)
2. Performance Relative to the Previous Preannouncements	Developed from Jaworski and Kohli (1993)
3. Performance Relative to Key Competitors' Preannouncements	Developed from Jaworski and Kohli (1993)

4.6 Questionnaire Administration

4.6.1 Questionnaire Packet

The questionnaire was printed double-sided on A4 paper, resulting in a length of 10 pages. The double-sided printing was intended to make the questionnaire

appear shorter and less time-consuming to complete (Jobber 1989). The whole mail packet consisted of the questionnaire, an accompanying cover letter (see Appendix B), and a self-addressed, freepost return envelope. Large (324 × 229 mm) manila envelopes were used for outgoing mail; small (229 mm × 162 mm) manila envelopes attached with freepost stickers for return mail.

4.6.2 Cover Letter

According to the suggestions from the studies in industrial mail survey (e.g., Diamantopoulos and Schlegelmilch 1996; Yu and Cooper 1983), personalised cover letters were mailed to the respondents who were identified through telephone pre-notification. The letters began with an overview of the phenomenon of interest, followed by a statement indicating sponsorship of the survey by a professional association (Diamantopoulos and Schlegelmilch 1996). Subsequently, the research purpose was clearly and concisely stated.

A social utility appeal (Yu and Cooper 1983), emphasising the worthiness and benefit of the research, was adopted to elicit cooperation. The ensuing contents included solicitation for a favour, the importance of the respondents and replies, and assurance of anonymity and confidentiality. Delegation of responsibility for answering the questionnaire to others was encouraged if the respondents regarded their colleagues as more suitable for the task.

In the last paragraph, the importance of a fully completed questionnaire was especially stressed in order to minimise potential problems with missing data. A report that summarises the findings of the research was promised as a nonmonetary

incentive. Afterwards, appreciation of the sender was addressed. Finally, the academic positions of the researchers were stated. The letters were signed by the researchers before mailing.

4.6.3 Data Collection

The data collection processes started in September 1998 and finished in February 1999. All the data for the research were collected in the United Kingdom. In advance of mailing the questionnaires, preliminary telephone contacts were made to identify key informants, solicit cooperation, and verify the mailing addresses. By informing the respondents of the legitimacy and importance of the survey and the forthcoming questionnaires, telephone notification served an additional function to increase the likelihood of response (Diamantopoulos and Schlegelmilch 1996; Jobber and O'Reilly 1998; Walker and Burdick 1977).

Questionnaires were distributed batch by batch to the respondents in the days following confirmation of their participation. Instant mailing was intended to ensure the respondents' willingness to cooperate in the sense that they had fresh memories of their promises, became aware of the forthcoming survey, and remained available for participation. Follow-up letters, along with duplicate questionnaires and return envelopes, were disseminated to all non-respondents approximately four weeks after the initial mailing (Jobber 1989). Two mailings, as well as telephone pre-notification, were employed to secure and stimulate response rates (Diamantopoulos and Schlegelmirch, 1996; Jobber and O'Reilly 1998; Yu and Cooper, 1983). For the mailings that failed to arrive at their destination due to accidental mismatching of

addresses and addressees, substitute companies were selected and the questionnaires were mailed to new addresses. Completed questionnaires were mailed by the respondents directly back to the researchers.

4.7 Summary

This chapter described the methodological issues concerning research design and data collection. The study employed a questionnaire survey to collect data from a variety of U.K. industries including consumer durable, industrial goods, and high-tech products. The questionnaire was developed through literature search, pilot study, and pretests. The full-scale postal survey was conducted from September 1998 to February 1999. The data were subsequently processed and analysed. The data processing and analysis will be discussed in the following two chapters. Chapter 5, specifically, deals with the description of the sample characteristics and the purification of the construct measures. Chapter 6 discusses the calculation of descriptive statistics and the hypothesis testing using structural equation modelling.

Chapter 5

Sample Characteristics and Preliminary Data Analysis

5.1 Introduction

Chapter 4 explained the research design and data collection for the hypothesis testing. To continue exploring the methodological issues involved in this research, both Chapter 5 and Chapter 6 are devoted to the empirical analysis of the collected data. Specifically, this chapter provides a discussion of the sample characteristics and preliminary data analysis, including basic data processing and construct validation. On the other hand, Chapter 6 addresses descriptive findings and the hypothesis testing.

The organisation of the remaining sections is as follows: The second section of this chapter begins with a discussion of sample characteristics, which covers the calculation of response rates, an examination of sample profile, a series of tests for nonresponse bias, and the justification for using key informants. Following this, Section 5.3 briefly describes the data analysis procedures for the research. Section 5.4 addresses the preliminary processing of the data. Finally, Section 5.5 discusses at great length the validation of the multi-item constructs composing the hypothesised model.

5.2 Sample Characteristics

5.2.1 Response Rate

Three hundred and one questionnaires were completed and returned, resulting in a 30.1% overall response rate. Of these, 202 questionnaires (20.2%) were effective because the responding companies reported that they had undertaken new product preannouncing activities in the past.[1] Five questionnaires were eliminated because of missing data on key construct items. Accordingly, there were 197 usable questionnaires left for the data analysis.

Although the usable response rate (19.7%) was not sufficiently high, it was still within the range of typical response rates for sampling from sales and marketing professionals (e.g., Gobeli, Koenig, and Bechinger 1998; John and Reve 1982; Singh 1993). Especially, it was rather consistent with the response rates for the research in the areas of market signalling and new product preannouncement (e.g., Eliashberg, Robertson, and Rymon 1995; Robertson, Eliashberg and Rymon 1995). The somewhat low response rate may be attributed to the complexity of the questionnaire and the unfamiliar and sensitive research topic. Nevertheless, the sample size of nearly 200 is typical and appropriate for the application of structural equation modelling (cf. Hulland, Chow, and Lam 1996).

[1] The inclusion of non-preannouncing firms in the mailing list seemed inevitable although efforts were made to identify preannouncing firms in the telephone prenotification. Such a mistake occurred owing to the time limit for clear explanation of research purposes in telephone conversation and the unfamiliarity of managers with the definition of new product preannouncement.

5.2.2 Sample Profile

The usable sample, despite the relatively low response rate, was deemed to be adequate for the research at hand. The composition of the responding firms is sufficiently diverse and heterogeneous. In terms of breakdown by industry, 10.2 % of the sample comprises automobiles, 12.7 % chemicals and pharmaceuticals, 11.7 % communication, 14.2 % computers, 15.7 % electric and electronic products, 16.8 % machinery and equipment, and 18.8 % medical and precision instruments. The respective response rates for the seven industries are shown in Table 5.1. A χ^2 goodness-of-fit test indicates that the response rates across industries are not significantly different. The null hypothesis of no response difference across industries fails to be rejected as the χ^2 value of the test (9.38) is smaller than the critical χ^2 value 12.59 (6 degrees of freedom at the .05 α level).

TABLE 5.1
Usable Sample and Response Rates by Industry

Industry	Sample Size	Usable Sample	Response Rate
1. Automobiles	140	20	14.3%
2. Chemicals and Pharmaceuticals	145	25	17.2%
3. Communication Equipment	140	23	16.4%
4. Computers	160	28	17.5%
5. Electric and Electronic Products	145	31	21.4%
6. Machinery and Equipment	150	33	22.0%
7. Medical and Precision Instruments	140	37	26.4%
Total	1,000	197	19.7%

As shown in Table 5.2, the sample is composed of companies with annual sales turnover spreading from UK £ 12,500 to UK £ 7 billion. The pre-tax profit ranges from a loss around UK £ -21 million to a profit near UK £ 1.1 billion. The net worth

covers a spectrum from UK £ -11.5 million to approximately UK £ 2.1 billion. As for the number of employees, the smallest firm has two employees and the largest firm has almost thirty nine thousand people.

Table 5.2
Company Profile of the Usable Sample

	Minimum	Maximum	Mean	Standard Deviation
Annual Sales Turnover (UK £ 000's)	12.5	7,000,000	260,568	982,526
Pre-tax Profit (UK £ 000's)	-20718	1,081,000	19,675	102,333
Net Worth (UK £ 000's)	-11,500	2,080,000	56,345	247,305
Number of Employees	2	38,763	1,436	5,152

5.2.3 Tests for Nonresponse Bias

To ensure that the sample was representative of the entire population, a series of tests were conducted to estimate the possibility of nonresponse bias. The data for the tests were collected from the records of OneSource database on the sampled firms. First, t-tests were used to examine the differences for four firm-related variables between the early and late respondents of the sample (Armstrong and Overton 1976). The responses received within four weeks after the initial mailing were considered early (n = 145); those received after four weeks were classified as late (n = 52) (cf. Mishra, Heide, and Cort 1998). The t-tests were conducted against the null hypothesis that there are no mean differences in annual turnover sales, pre-tax profit, net worth, and number of employees across the early and late responding groups. As a result, the hypothesis is not rejected. No significant difference exists between these two groups in any of the four measures (for annual turnover sales: $t = -.38$, $p = .706$;

for pre-tax profit: t = -.83, p = .411; for net worth: t = -.93, p = .352; for number of employees: t = -.38, p = .707).[2]

In a similar vein, additional t-tests comparing the responding sample (n = 197) with actual nonrespondents (n = 699) were conducted to provide further evidence of the lack of nonresponse bias (cf. Mishra, Heide, and Cort 1998). Again, the null hypothesis is not rejected that there are no mean differences in annual turnover sales (t = 1.45, p = .148), pre-tax profit (t = .79, p = .431), net worth (t = .82, p = .412), and number of employees (t = -.66, p = .511) between the two groups.[3] The low t-values and high probabilities both indicate a lack of significant differences.

A chi-square test was conducted to examine the null hypothesis that differences exist in the responding pattern across industries. The test compared the distribution of early and late respondents in the seven industries. The result indicates that the hypothesis fails to be rejected (χ^2=5.46, df = 6, p = .486) With all the evidence, it can therefore be concluded that nonresponse bias does not appear to be a serious concern in this research.

5.2.4 Key Informant Rationale

Before the collected data could be further processed, the use of key informant method for this questionnaire survey had to be justified to ensure that the measurements of the constructs of interest reflect organisational characteristics or phenomena, instead of personal feelings or opinions (Philips 1981). The qualification

[2] Due to missing data in the OneSource database, the sizes of early and late responding groups were different in respective tests.

[3] Likewise, the sizes of responding and nonresponding groups in the tests varied because of missing data in the OneSource database.

of the key informants can be assessed in terms of (1) the formal role in the company, (2) the time worked in the company, (3) the knowledgeability about the phenomena of interest, and (4) the participation (or involvement) in the company's decision making with respect to the surveyed issues. These four established criteria have been used, separately or jointly, for evaluating the validity of key informant method in industrial marketing studies (e.g., Eliashberg and Robertson 1988; Ganesan 1994; John and Reve 1982; Kumar, Stern, and Anderson 1993; Philips 1981).

The extent to which different personnel influence the decisions about new product preannouncement was assessed on 7-point Likert scales anchored at 1 = "not at all" and 7 = "to a great extent." The results show that the managers with greatest influence on the preannouncing decisions are vice presidents or directors of sales/marketing (mean = 6.06, standard deviation = 1.36) and sales, product, or marketing managers (mean = 6.03, standard deviation = 1.22). Presidents, CEOs, or managing directors are also major influencers (mean = 5.75, standard deviation = 1.50). In the survey, the respondents reported their current positions in the companies and then positions when the preannouncements were conducted. Of the respondents, 39.6% are currently marketing, product, or sales managers; 26.4% CEOs, presidents, or managing directors; 17.8 % vice presidents or directors. At the time when the preannouncements were conducted, 38.6% of the respondents were marketing, product, or sales managers, 23.9% were at the level of CEO, president, or managing director, and 18.3% were vice presidents or directors of sales/marketing. As a result,

a majority of the respondents in the sample (currently or previously) are in the most influential positions for the decisions of new product preannouncement.

On average, the respondents have worked in their companies for 9.05 years (standard deviation = 7.95). As for knowledgeability, the respondents were asked to report how well they were informed about the firms' new product preannouncements on a 7-point Likert scale, ranging from 1 = "not at all informed" to 7 = "extremely well-informed." The mean value is 6.42 (standard deviation =1.00). Furthermore, the respondents were asked to answer a question concerning the extent to which they were involved in the decision-making of preannouncing new products. On a 7-point Likert scale (from 1 = "absolutely not involved" to 7 = "highly involved"), the involvement measure is scored with an average of 5.77 and a standard deviation of 1.74. The average values of informant knowledgeability and participation are both greater than 5, showing evidence that the respondents are competent on reporting the issues under investigation (Li and Calantone 1998).

In conclusion, the profile of respondents reveals consistency with the key informant rationale (Campbell 1955). The respondents in the sample are verified as legitimate informants to the extent that they are relatively senior in the companies, more influential in the preannouncing decision, well-informed about the preannouncement, or highly involved in the preannouncing decision-making. As such, they are all qualified to provide valid information. A potential problem with key informant bias is not severe in this study.

5.3 Procedure of the Data Analysis

Data editing, coding, transformation, and screening were conducted in advance of further data analysis. As the hypothesised model would be tested using structural equation modelling, the two-step approach advocated by Anderson and Gerbing (1988) was adopted in which the construct scales for the research were identified in the first stage and then fixed in the estimation of structural model. In so doing, more reliable measures can be secured in the sense that the interaction of measurement and structural models is avoided.

The hypothesised model was translated into a series of structural equations and the measure model was specified according to the corresponding relationships among the manifest variables and the latent constructs. The modelling was employed on LISREL 8.20 (Anderson and Gerbing 1988; Joreskog and Sorbom 1996) to generate the constructs and test the proposed hypotheses. First, the measurement scales of the constructs were purified through confirmatory factor analysis to ensure unidimensionality, convergent validity, and discriminant validity (Joreskog and Sorbom 1996). Afterwards, the structural equation model was estimated using the constructs formed from the measures which had been validated as appropriate during the first stage (Hulland, Chow, and Lam 1996).[4]

[4] Appendix C contains an overview of structural equation modelling and LISREL. It includes an introductory review, the mathematical expression of a general structural equation model, and the issues involved in the application of structural equation modelling. The overview is important and indiscrepensable in the sense that both the construct validation and the hypothesis testing resort to this statistical technique.

5.4 Preliminary Data Processing

Once collected, the data were edited immediately to ensure maximum accuracy and unambiquity (Green, Tull, and Albaum 1988). As most of the constructs in this study were measured on 7-point Likert scales, responses to favourable statements were scored from 1 for "strongly disagree" and the like to 7 for "strongly agree" and the like. Scores were reversed for the coding of the responses to negative or unfavourable statements (cf. Gaski 1986; Eliashberg and Robertson 1988). As such, greater scale values correspond to higher levels of the measurement items.

All the Likert scales, despite their ordinal nature, were treated as continuous scales for later analysis, especially for the use of structural equation modelling (Byrne 1998). This is a commonly accepted practice in marketing and other social science research. Such a treatment is justifiable given the fact that the number of response categories used in the study, seven, was sufficiently large (Babakus, Ferguson, and Joreskog 1987; Bentler and Chou 1987; West, Finch, and Curran 1995).

The values of four single-index measures, preannouncing timing, preannouncing frequency, message content, and firm size (refer to Section 4.5), were processed as follows.[5] The values of preannouncing timing, reported in terms of day, week, month, or year, were uniformly translated by the day. The scores of how often a firm disseminated new product preannouncements across important communication channels, those with importance scores greater than 4, were averaged to form the value of preannouncing frequency. The values for message content were calculated

[5] Preannouncing frequency and message content are actually formative measures which aggregate measurement items to form the composite constructs, rather than reflective measures caused by underlying latent constructs (cf. Bollen and Lennox 1991).

by taking the average of the scores on the twelve message cues. The values of firm size, measured as the number of employees, were transformed into natural logarithms (cf. Blau, Falbe, McKinley, and Tracy 1976; Mahoney 1992; Zajac and Westphal 1994). Likewise, the values of preannouncing timing were transformed into natural logarithm as well. By taking logarithm of these two variables, their slightly positively skewed distributions would be remedied to achieve normality and homoscedasticity (Hair, Anderson, Tatham, and Black 1995).

The values of the objective-attainment performance were computed by aggregating the weighted scores of the extent to which the chosen objectives were achieved. The weights were attached based on the relative importance allocated to the objectives (see Section 4.5).

5.5 Construct Validation

Measurements are inevitably associated with certain amounts of errors, i.e., random and systematic errors. Measures containing substantial errors represent inherent threats to the validity of research findings. In the use of such measures, coefficient estimates in linear models, like regression and path analysis models, are liable to biases (Hughes, Price, and Marrs 1986). Therefore, it is vital to ensure that the measurements of constructs are psychometrically sound before attempting to evaluate the structural model (Churchill and Peter 1984). By validating constructs, we can lessen the distorting and confounding impacts of the measurement errors on

the structural relationships (Bagozzi, Yi, and Philips 1991; Steenkamp and van Trijp 1991).

Construct validity, a prerequisite for theory development and testing, refers to the extent to which a construct achieves theoretical and empirical meanings (Bagozzi 1980). In other words, it concerns to what extent the indicators of a construct accurately measure what they are intended to measure (Peter 1979; Peter 1981). In this research, the following criteria were adopted to assess construct validity: (1) unidimensionality, (2) (within-method) convergent validity, (3) reliability, (4) discriminant validity, (5) nomological validity (Gerbing and Anderson 1988; Nunnally 1978; Steenkamp and van Trijp 1991).

5.5.1 Item-to-Total Correlation

The measures of the research were validated in light of Gerbing and Anderson's (1988) updated paradigm for scale development. A multistage process was adopted to purify the measures (Chandy and Tellis 1998; Steenkamp and van Trijp 1991). The first step in construct validation is to examine the item-to-total correlations for the items of respective scales. The total scores were calculated by aggregating the scores across the items underlying the same constructs. Steenkamp and van Trijp (1991) suggest that, for a multidimensional construct, item-to-total correlations need to be calculated for individual subscales separately. Therefore, items associated with three market orientation subconstructs, customer orientation, competitor orientation, and interfunctional orientation, were respectively used for item-to-total correlation analyses. Items with the correlation values lower than .60

were eliminated from the item pools (Jaworski and Kohli 1993). Table 5.3 illustrates all the deleted items, their ordinal numbers, and the corresponding constructs.

Table 5.3
Items Deleted After Item-to-Total Correlation Analyses

Construct	Number•	Measurement Item
Brand Strength	4	Customers regarded the brand as a very low-value brand.
Product Newness	4	Customers were always engaged in advance planning for adopting it.
	5	It involved high switching costs for the customer.
Category Strength	2	We always followed larger competitors' market moves.
Market Orientation	1	Business objectives were driven by customer satisfaction.
Network Externality	4	In the market, customers tended to stick to incumbent technologies
Market Turbulence	4	We actually catered to many customers that we have served in the past.
	5	Demand was fairly easy to forecast in this market.
	6	The changes in customer preference over time were difficult to predict in this market.
Visibility	2	We used informal communication channels for the preannouncement.
	4	The communication channels chosen were industry-specific.
Message Uniformity	3	We varied messages when they were conveyed to different audiences.
Message Truthfulness	1	We conveyed messages that reflected the facts about the new product.

• Refer to Table 4.2.

5.5.2 Exploratory Factor Analyses

A series of exploratory factor analyses were employed for the items that remained after the item-to-total correlation analyses to further purify the measurement indicators (Gerbing and Anderson 1988). The method of principle components in

conjunction with the latent root criterion, which demands factors with eigenvalues greater than 1 to be considered significant, was the technique for extracting factors (Green, Tull, and Albaum 1988). Items of the same scale that failed to exhibit significant loading on the focal factor or that cross-loaded as highly on other factors were eliminated. A cutoff value of .40 was adopted as a criterion for screening (moderately) significant factor loadings (Gerbing and Anderson 1988). This value was determined based on the objective of obtaining a power level of 80 percent, the use of a .05 significance level, and the sample size of 200 (Hair, Anderson, Tatham, and Black 1995).

Brand Strength, Product Newness, and Product Category Strength

The remaining scale items were categorised into five groups and then factor analysed. The grouping, aligned with the conceptual framework, was to meet a requested ten-to-one ratio for sample size per variable to be analysed (Hair, Anderson, Tatham, and Black 1995). The first exploratory factor was performed on the measurement items of brand strength, product newness, and category strength. The initial result shows a four-factor structure. After the use of an oblique rotation (Gerbing and Anderson 1988)[6], the pattern matrix indicated that an item of product newness (number 6) has a significant cross-loading. Therefore, the item was deleted and a new factor analysis was conducted using the remainder. The new result shows a structure of three underlying factors. All the relevant factor loadings on the primary

[6] As Gerbing and Anderson (1988) recommend, a varimax rotation was also conducted for completeness. In this particular analysis, no difference was found between the results obtained from two different rotation methods in terms of factor pattern and loading. In a similar vein, only the results of oblique rotations will be presented hereinafter unless indicated otherwise.

factors are greater than .50. Table 5.4 summarises the factor loadings and communality of the factor matrix after oblique rotation.

Table 5.4
Oblique Rotated Factor Matrix for Brand Strength, Product Newness, and Product Category Strength

Construct (Item Number)•	Factor 1	Factor 2	Factor 3	Communality
Brand Strength (1)	.76076	.12414	.05813	.56222
Brand Strength (2)	.84122	.15553	.11647	.68156
Brand Strength (3)	.71552	-.10892	.00535	.53618
Brand Strength (4)	.50534	-.22538	-.20439	.41916
Brand Strength (5)	.68729	-.09182	-.14039	.55542
Product Newness (1)	.06982	.88341	.00523	.77462
Product Newness (2)	-.02213	.88098	-.01453	.77859
Product Newness (3)	-.03754	.84072	-.09652	.71140
Product Category Strength (1)	.15986	.02938	-.77202	.67231
Product Category Strength (2)	-.15020	-.03440	-.81000	.62960
Product Category Strength (3)	.04039	.12783	-.88343	.79869

• Refer to Table 4.2.

Market Orientation

A separate factor analysis was employed to examine the existence of three subscales underlying the construct of market orientation. The resulting exploratory solution shows a clear three-factor structure. The oblique rotation of the factor matrix confirms the three-factor solution. All the corresponding factor loadings on respective factors, i.e., customer orientation, competitor orientation, and interfunctional coordination, are above the threshold of .40. The results of the second exploratory factor analysis are shown in Table 5.5.

Table 5.5
Oblique Rotated Factor Matrix for Market Orientation

Construct (Item Number)•	Factor 1	Factor 2	Factor 3	Communality
Market Orientation (2)	.20280	-.02328	.72789	.64693
Market Orientation (3)	-.07097	.28139	.68767	.62748
Market Orientation (4)	-.15186	.28450	.56012	.43426
Market Orientation (5)	.11318	-.16426	.74679	.56747
Market Orientation (6)	.37882	.09689	.44361	.49429
Market Orientation (7)	.00624	.81449	-.09296	.63135
Market Orientation (8)	.06686	.81880	.01376	.71227
Market Orientation (9)	.08556	.77955	.06518	.68837
Market Orientation (10)	.05427	.59434	.24873	.52820
Market Orientation (11)	.66665	.24212	-.23743	.52163
Market Orientation (12)	.81130	.05669	.01380	.69407
Market Orientation (13)	.79956	-.07671	.11965	.67726
Market Orientation (14)	.69273	-.03349	.33313	.70991

• Refer to Table 4.2. Items 2-6: Customer Orientation; Items 7-10: Competitor Orientation; Items 11-14: Interfunctional Coordination.

Network Externality, Competitive Hostility, Market Turbulence, and Technological Turbulence

The third factor analysis was performed to test the indicators of four situational factors--network externality, competitive hostility, market turbulence, and technological turbulence. A four-factor structure emerged as expected. An oblique rotation of the resulting matrix, as shown in Table 5.6, demonstrates that all the scale items were significantly loaded on the four latent traits. Hence, no indicator was deleted.

Message Clarity, Message Uniformity, and Message Truthfulness

The items of message clarity, uniformity, and truthfulness were factor analysed as a group in expectation of a three dimensional structure. As expected, a three-factor

solution came out. Nevertheless, a closer examination of the factor matrix showed that one item of message clarity (number 1) has a significantly great cross-loading on another factor. Removal of this indicator resulted in a clearer pattern of three-construct solution with significant factor loadings respectively. Table 5.7 contains the factor loadings and communality of the factor matrix for these three constructs.

Table 5.6
Oblique Rotated Factor Matrix for Network Externality, Competitive Hostility, Market Turbulence, and Technological Turbulence

Construct (Item Number)•	Factor 1	Factor 2	Factor 3	Factor 4	Communality
Network Externality (1)	.02562	.28310	.62817	-.00477	.54432
Network Externality (2)	-.04222	.00105	.77028	.01885	.59046
Network Externality (3)	-.01192	-.00395	.57970	.20827	.39950
Network Externality (5)	.11113	-.06714	.65368	-.19898	.45415
Competitive Hostility (1)	.09835	.83606	.00667	-.24944	.70408
Competitive Hostility (2)	-.00077	.72474	.02035	.08122	.55630
Competitive Hostility (3)	-.15625	.56832	.13714	.13632	.42075
Competitive Hostility (4)	-.04632	.74264	-.00597	-.12196	.53857
Competitive Hostility (5)	.07306	.52331	-.03704	.23353	.37357
Market Turbulence (1)	.08350	.07651	.30960	.60753	.56523
Market Turbulence (2)	.22127	.14773	-.09947	.60336	.50682
Market Turbulence (3)	-.02861	-.11254	-.03923	.69084	.45683
Technological Turbulence (1)	.82681	-.02983	.09417	-.03344	.69877
Technological Turbulence (2)	.82164	.03046	.00793	.05632	.70225
Technological Turbulence (3)	.58726	.11084	-.13311	.01486	.35949
Technological Turbulence (4)	.81766	.00655	.08323	.03813	.70737
Technological Turbulence (5)	.75435	-.20408	.06879	.01375	.61470

• Refer to Table 4.2.

Media Emphasis, Media Favourability, and Preannouncing Effectiveness

The fifth exploratory factor analysis examined the indicators of visibility, media emphasis, media favourability, and preannouncing effectiveness. It was presumed that there existed four constructs underlying these indicators. Surprisingly,

the result shows a structure of only three factors. A rotated solution also confirms the three-factor structure under which the items of both media emphasis and favourability significantly loaded on the same trait. However, one item of visibility (number 3) has a heavily high cross-loading (> .50) on the factor underlying media emphasis and favourability.

Table 5.7
Oblique Rotated Factor Matrix for Message Clarity, Message Uniformity, and Message Truthfulness

Construct (Item Number)•	Factor 1	Factor 2	Factor 3	Communality
Message Clarity (2)	.85513	.01325	-.04924	.71578
Message Clarity (3)	.68541	.19703	-.01328	.57435
Message Clarity (4)	.80950	.12151	.08475	.77300
Message Clarity (5)	.77156	-.13390	.08875	.59951
Message Uniformity (1)	.33702	-.12558	.68579	.66923
Message Uniformity (2)	-.08417	.16108	.57900	.37530
Message Uniformity (4)	-.04512	-.11115	.78247	.57038
Message Uniformity (5)	.12308	.13668	.63624	.53084
Message Truthfulness (2)	.04385	.78164	-.07586	.60842
Message Truthfulness (3)	.18685	.46953	-.03076	.29329
Message Truthfulness (4)	.01057	.70094	.00126	.49578
Message Truthfulness (5)	-.11945	.67839	.21549	.52874

• Refer to Table 4.2.

The results of the fifth exploratory factor analysis appear that the seeming unidimensionality of the media emphasis and favourability indicators may result from a high correlation between these two constructs. Since the use of exploratory factor analysis typically cannot provide an explicit dimensionality test (Gerbing and Anderson 1988), a solution for the issue concerning the underlying structure of these indicators had to rest on a confirmatory factor analysis. By using confirmatory factor analysis, the unidimenisonality and discriminant validity of the two constructs would

be examined to ensure that they are conceptually discrete. On the other hand, the cross-loading of the visibility indicator, in the strict sense, indicates a lack of unidimensionality, which suggests the removal of the item. With only two indicators left after the item-to-total analysis, further deletion of any one indicator means that the whole multi-item construct has to be dropped out of the study. Nevertheless, a continuous use of invalid measurements may damage the assessment of the hypothesised structural relationships among the constructs. Given the strong evidence of serious measurement errors, the two indicators of visibility were both eliminated from subsequent analyses. The influence of the construct deletion on the research will be thoroughly discussed in Section 8.5. The final results of the factor analysis after eliminating the two indicators of visibility are shown in Table 5.8.

Table 5.8
Oblique Rotated Factor Matrix for Media Emphasis, Media Favourability, and Preannouncing Effectiveness

Construct (Item Number)•	Factor 1	Factor 2	Communality
Media Emphasis (1)	.77899	.12332	.69308
Media Emphasis (2)	.64922	.07015	.46010
Media Emphasis (3)	.82688	-.00444	.68103
Media Emphasis (4)	.77198	-.10525	.54694
Media Favourability (1)	.88353	-.01957	.76823
Media Favourability (2)	.95201	-.10444	.84370
Media Favourability (3)	.82649	.02744	.70062
Media Favourability (4)	.69297	.08872	.53354
Preannouncing Effectiveness (1)	-.01477	.75644	.56416
Preannouncing Effectiveness (2)	.04641	.81640	.69668
Preannouncing Effectiveness (3)	-.00206	.83386	.69406

• Refer to Table 4.2.

In summary, the exploratory factor analyses further took out four items. Table 5.9 shows the eliminated items. In total, 17 items were removed after the item-to-total correlation and exploratory factor analyses. Each refined scale was scrutinised to ensure that, after item deletion, consistent meanings underlying the construct were retained. The remaining construct items were subjected to confirmatory factor analyses to assess unidimensionality, convergent, discriminant, and nomological validity.

Table 5.9
Items Eliminated After the Exploratory Factor Analyses

Construct	Number•	Measurement Item
Product Newness	6	The product was one of the most complex products we had ever introduced into the market.
Message Clarity	1	The preannouncements we made were kept ambiguous.
Visibility	1	We preannounced the product in the communication channels aimed at a broad audience.
	3	We sent the preannounced messages via media which were more visible in the marketplace.

• Refer to Table 4.2.

5.5.3 Confirmatory Factor Analyses

The validity of the constructs in the research were tested through a series of confirmatory factor analyses, for adequate measurements are a premise of the assessment of valid structural relationships (Churchill and Peter 1984). Unidimensionality was first evaluated by confirmatory factor analyses of multiple-indictor measurement models in which each construct of interest was defined by at least two indicators and each indicator was posited as an estimate of only one construct (Gerbing and Anderson 1988). As advocated by Anderson, Gerbing, and

Hunter (1987), the dimensionality of various constructs was jointly assessed by including more than one set of measures in a single model. Nevertheless, the use of full-information estimation approaches (Bentler 1983), including all measures in one analysis, was impracticable for the current research, given great amounts of the measurement indicators. In this context, all the remaining indicators were classified into four sets according to their positions in the conceptual framework and the 10:1 sample size per variable ratio (Hair, Anderson, Tatham, and Black 1995).

Before the analyses were conducted, the measurement indicators were screened using the PRELIS programme to assess the normality assumption for the use of structural equation modelling. In each confirmatory factor analysis, the maximum likelihood estimation method, with covariance matrices as input matrices, was used for its robustness against moderate violations of the multivariate normality assumption and for its lesser demand for large sample size (Joreskog and Sorbom 1996; Steenkamp and van Trijp 1991). The diagonal elements of the phi matrix were fixed at 1.0, so all factors would have unit variance. Rather than arbitrarily restricting the pattern coefficients to 1.0, this approach is a preferred way to achieve identification (Anderson and Gerbing 1988).

Market Orientation

Slightly different from the exploratory analyses, the confirmatory approach started with a second-order confirmatory factor analysis of the market orientation indicators. This confirmatory model was performed to test the theoretically two-level construct structure of market orientation under which a higher level factor, market

orientation, is composed of three lower level traits, customer orientation, competitor orientation, and interfunctional coordination (Narver and Slator 1990; Slator and Narver 1994).[7] A preliminary examination of the market orientation indicators shows that the skewness ranged from -1.323 to -.089, with a mean value of -.603, and that the kurtosis ranged from -.746 to 2.211, with a mean value of .212. As all the skewness values are within the range of ±2.0 and all the kurtosis values are within ±7.0, the indicators, for practical purposes, can be regarded as generally approximating a normal distribution (Byrne 1988). Table 4.7 summarises the basic statistics of these indicators.

Table 5.10
Means, Standard Deviations, Skewness, and Kurtosis of Market Orientation Indicators

Item Number•	Mean	Standard Deviation	Skewness	Kurtosis
2	5.127	1.277	-0.774	0.836
3	5.787	1.018	-0940	1.277
4	5.442	1.201	-0.745	0.631
5	4.523	1.476	-0.175	-0.746
6	5.315	1.259	-0.675	0.373
7	5.015	1.483	-0.747	-0.018
8	4.584	1.484	-0.382	-0.415
9	4.959	1.428	-0.640	-0.233
10	5.614	1.205	-1.323	2.211
11	4.117	1.549	-0.089	-0.810
12	4.863	1.409	-0.682	0.029
13	4.690	1.432	-0.462	-0.351
14	4.914	1.281	-0.485	-0.027

• Refer to Table 4.2.

[7] The second-order confirmatory factor analysis model for the construct of market orientation has one second-order factor and three first-order factors. In such a structure, the model is just-identified in its second-order part, which makes it indiscriminate from a first-order factor model with three first-order factors (Rindskopf and Rose 1988). In other words, the overall goodness-of-fit test of this second-order factor model does not test the second-order structure due to the identification limitation. However, the theoretical rationale for market orientation favours the second-order factor structure, given no statistical difference between the first- and second-order factor models.

An initial second-order factor analysis was performed using all 13 indicators from the three subscales of market orientation. The fit of this model was acceptable ($\chi^2(62)= 129.03$ ($p< .001$), CFI = .93, GFI = .91, AGFI = .86, NFI = .87, NNFI = .91, PGFI = .62, RMSEA = .076, RMR = .13), which confirms the underlying two level, three subscale structure. However, it appeared that the model fit could be improved in that five items, Item 3, Item 4, Item 5, Item 10, and Item 14 (see Table 4.2), have high standardised residuals and modification indices. The standardised residuals for Items 3 and 4, Items 3 and 10, Items 4 and 10, and Items 10 and 14 are 2.66, 3.00, 3.80, and 2.71. As for the modification indices for the factor loading matrix, Item 3 has a value of 8.54, Item 4 has a value of 6.41, Items 5 has a value of 7.27, Item 10 has a value of 6.92, and Item 15 has a value of 8.97. These items were deleted according to Anderson and Gerbing's (1988) suggestions for model respecification. The model was therefore respecified, indicating a well-fit result with $\chi^2(17) = 22.06$ ($p = .18$), CFI = .99, GFI = .97, AGFI = .94, NFI = .95, NNFI = .98, PGFI = .46, RMSEA = .042, and RMR = .098. With the fit statistics, the second-order structure of market orientation was confirmed as dictated by the underlying theory. As such, scores of the three subscales were averaged respectively to constitute three aggregate indicators representing market orientation in ensuing analyses.

Brand Strength, Product Newness, Product Category Strength, and Market Orientation

The following four factor analyses were conducted through the use of first-order confirmatory factor analysis models, proposing one-level, multidimensional structures. The first analysis involved purifying the measurement indicators of brand strength, product newness, product category strength, and market orientation. As mentioned, the construct of market orientation was accounted for by three aggregate indicators, namely customer orientation, competitor orientation, and interfunctional coordination. Table 5.11 illustrates the result of data screening, which confirmed no violation against the assumption of normal distribution (average skewness = -.192; average kurtosis = -.434). An incipient model achieved a chi-square of 123.50 with 71 degrees of freedom ($p < .001$) and other adequate model fit statistics: CFI = .93; GFI = .91; AGFI = .87; NFI = .86; NNFI = .92; PGFI = .62, RMSEA = .067; RMR = .18. The statistics provide supportive evidence of a four-factor structure, while indicating a need of improvement in model fit. After removing Item 2 of brand strength (see Table 5.15) that has the largest standardised residuals (5.64 for Item 2 and Item 1; -3.12 for Item 2 and Item 5), the final model shows that the respecified model fits the data very well ($\chi^2(59) = 72.00$ ($p = .12$), CFI = .98, GFI = .94, AGFI = .91, NFI = .91, NNFI = .98, PGFI = .61, RMSEA = .042, and RMR = .098).

Table 5.11
Means, Standard Deviations, Skewness, and Kurtosis of the Indicators for Brand Strength, Product Newness, Category Strength, and Market Orientation

Construct	Item No.•	Mean	Standard Deviation	Skewness	Kurtosis
Brand Strength	1	3.807	1.883	0.097	-1.162
	2	3.772	1.850	0.071	-1.083
	3	4.848	1.445	-0.755	0.293
	5	4.746	1.402	-0.515	-0.096
	6	4.726	1.695	-0.693	-0.357
Product Newness	1	3.411	1.666	0.318	-0.941
	2	3.523	1.652	0.251	-1.009
	3	2.802	1.480	0.832	-0.056
Category Strength	1	3.944	2.093	0.021	-1.439
	3	3.939	1.775	-0.051	-1.117
	4	4.264	1.928	-0.177	-1.180
Customer Orientation	-	5.221	1.107	-0.808	1.407
Competitor Orientation	-	4.853	1.236	-0.648	0.318
Interfunctional Coordination	-	4.557	1.163	-0.642	0.346

• Refer to Table 4.2.

Network Externality, Competitive Hostility, Market Turbulence, and Technological Turbulence

The indicators of network externality, competitive hostility, market turbulence, and technological turbulence were subjected as a group to the second first-order confirmatory factor analysis. The screened data, shown in Table 5.12, demonstrate reasonable consistency with the assumption of normal distribution, with skewness ranging from -1.068 to .397 and kurtosis ranging from -1.163 to .741. As expected, the specified four-factor structure turned out to be an acceptable solution ($\chi^2(113) = 155.46$ ($p < .001$), CFI = .95, GFI = .92, AGFI = .89, NFI = .83, NNFI = .93, PGFI = .68, RMSEA = .041, and RMR = .15). The standardised residuals suggested room for

improvement in model fit. Item 1 of competitive hostility has a residual value of 3.01 for itself and Item 4 of the same construct. Item 1 of market turbulence has a residual value of 3.07 for itself and Item 3 of network externality. The original model was respecified after eliminating the Item 1 of competitive hostility and Item 1 of market turbulence (see Table 5.15). The resulting model adequately fits the data, with the model fit indices as follows: $\chi^2(84) = 90.77$ ($p = .29$), CFI = .99, GFI = .94, AGFI = .92, NFI = .87, NNFI = .99, PGFI = .66, RMSEA = .013, and RMR = .13.

Table 5.12
Means, Standard Deviations, Skewness, and Kurtosis of the Indicators for Network Externality, Competitive Hostility, Market Turbulence, and Technological Turbulence

Construct	Item No.•	Mean	Standard Deviation	Skewness	Kurtosis
Network Externality	1	4.553	1.412	-0.796	0.153
	2	4.492	1.476	-0.547	-0.297
	3	4.447	1.633	-0.376	-0.676
	5	4.970	1.467	-0.672	-0.335
Competitive Hostility	1	4.299	1.686	-0.119	-0.940
	2	3.523	1.448	0.397	-0.367
	3	5.315	1.411	-1.068	0.741
	4	4.350	1.701	-0.435	-0.810
	5	3.863	1.634	0.046	-0.905
Market Turbulence	1	3.822	1.589	0.087	-0.719
	2	4.152	1.593	-0.161	-0.768
	3	3.706	1.774	0.166	-1.163
Technological Turbulence	1	4.802	1.646	-0.344	-0.959
	2	5.168	1.558	-0.781	-0.068
	3	3.990	1.568	0.049	-0.807
	4	4.340	1.712	-0.005	-1.134
	5	4.904	1.834	-0.458	-1.083

• Refer to Table 4.2.

Message Clarity, Message Uniformity, and Message Truthfulness

The third first-order confirmatory factor analysis was performed using the measurement indicators of message clarity, uniformity, and truthfulness. A perusal of the raw data reveals that two indicators of message truthfulness exhibit slight evidence of skewness and kurtosis (see Table 5.13). Of the two moderately nonnormal items, Item 2 is moderately negative skew (-2.104 for skewness) and Item 4 is moderately skew and leptokurtical (-2.806 for skewness and 9.109 for kurtosis) (Byrne 1998). The inclusion of all the indicators in the subsequent analysis is justifiable to the extent that the maximum likelihood estimation method used in the analysis is robust against moderate nonnormality (Gerbing and Anderson 1985). The resulting statistics indicate an acceptable three-factor solution ($\chi^2(51) = 93.58$ ($p < .001$), CFI = .93, GFI = .93, AGFI = .90, NFI = .86, NNFI = .91, PGFI = .61, RMSEA = .059, and RMR = .12). As in the previous analyses, the model was respecified by removing one item from each construct (see Table 5.15), resulting in a better-fit solution. The chi-square value is 41.77 with 24 degrees of freedom ($p = .014$); CFI = .96; GFI = .96; AGFI = .92; NFI = .92; NNFI = .94; PGFI = .51; RMSEA = .061; and RMR = .13.[8]

[8] This final three-factor model is concluded as an adequate description of the three message-related constructs, even though the p value associated with the χ^2 statistic in the model is not as large as those in the previous models. A caveat advocated by Anderson and Gerbing (1988) and MacCallum, Rozonowski, and Necowitz (1992) points out that it is precarious to modify a model to achieve better fit by correlating measurement errors simply because the modification indices suggest so. Hence, no further model respecification was pursued provided other fit statistics, like the CFI and GFI, showing that the model fits the data very well.

Table 5.13
Means, Standard Deviations, Skewness, and Kurtosis of the Indicators for Message Clarity, Message Uniformity, and Message Truthfulness

Construct	Item No.•	Mean	Standard Deviation	Skewness	Kurtosis
Message Clarity	2	5.508	1.252	-1.065	1.215
	3	4.985	1,646	-0.641	-0.410
	4	5.447	1.375	-0.976	0.634
	5	5.173	1.522	-0.822	0.141
Message Uniformity	1	5.447	1.318	-0.841	0.482
	2	5.868	1.404	-1.426	1.259
	4	4.766	1.683	-0.509	-0.479
	5	5.523	1.514	-1.319	1.433
Message Truthfulness	2	6.086	1.373	-2.104	4.332
	3	5.898	1.147	-1.602	3.446
	4	6.503	0.977	-2.806	9.109
	5	5.589	1.417	-1.165	0.924

• Refer to Table 4.2.

Media Emphasis, Media Favourability, and Preannouncing Effectiveness

The fourth model involves a first-order factor analysis on the measurement items of media emphasis, media favourability, and preannouncing effectiveness. In the exploratory factor analyses, the constructs of media emphasis and favourability appeared to be indistiguishable form each other. A solution to such a confusion relies on two confirmatory factor analyses, in which the proposed three-factor structure is tested against a two-factor structure. The data screening shows no violation against the assumption of normal distribution (see Table 4.14). The factor analysed results demonstrate that the three-factor structure is acceptably supported ($\chi^2(59) = 112.48$ ($p < .001$), CFI = .96, GFI = .92, AGFI = .87, NFI = .92, NNFI = .95, PGFI = .59, RMSEA = .069, and RMR = .13). All the statistics indicate the three-factor structure

is superior to the two-factor structure ($\chi^2(43) = 155.72$ ($p < .001$), CFI = .91, GFI = .86, AGFI = .79, NFI = .88, NNFI = .89, PGFI = .56, RMSEA = .12, and RMR = .18).[9] The chi-square difference ($\Delta\chi^2 = 43.24$) with 14 degrees of freedom is significant at the .01 level. The improvement in the fit of the preferred model was made by deleting one indicator from the media emphasis constructs and the other from media favourablity (see Table 5.15). The resulting goodness-of-fit statistics are illustrated as follows: $\chi^2(24) = 31.02$ ($p = .15$); CFI = .99; GFI = .97; AGFI = .94; NFI = .97; NNFI = .99; PGFI = .52; RMSEA = .037; and RMR = .073.

Table 5.14
Means, Standard Deviations, Skewness, and Kurtosis of the Indicators for Media Emphasis, Media Favourability, and Preannouncing Effectiveness

Construct	Item No.•	Mean	Standard Deviation	Skewness	Kurtosis
Media Emphasis	1	2.929	1.852	0.668	-0.776
	2	3.796	2.160	0.128	-1.442
	3	3.092	1.832	0.48	-0.941
	4	3.592	1.623	-0.119	-0.714
Media Favourability	1	3.980	1.780	-0.393	-1.005
	2	4.087	1.788	-0.507	-0.849
	3	4.071	1.720	-0.441	-0.654
	4	4.474	1.735	-0.501	-0.474
Preannouncing Effectiveness	1	4.963	0.980	-0.857	1.179
	2	5.117	0.935	-0.503	1.102
	3	5.005	1.125	-0.381	0.076

• Refer to Table 4.2.

[9] A similar analysis was also conducted using only the indicators of media emphasis and favourability (i.e., the indicators of preannouncing effectiveness were excluded). The same conclusion was reached that treating media emphasis and favourability as two discrete constructs is preferred to regarding them as one.

Summary of the Eliminated Items

The confirmatory factor analyses led to a further elimination of 13 measurement indicators. As illustrated in Table 5.15, five eliminated indicators belong to the construct of market orientation. As for the remaining 8 items, each single item was deleted respectively from the following eight constructs: brand

Table 5.15
Items Deleted After the Confirmatory Factor Analyses

Construct	Number•	Measurement Item
Market Orientation	3	Our competitive strategies were based on understanding customer needs.
	4	Strategies were driven by our beliefs about creating customer value.
	5	Customer satisfaction was frequently and systematically measured.
	10	We targeted opportunities which led to competitive advantage.
	14	Managers understood how everyone could contribute to creating customer value.
Brand Strength	2	People always stated that they had heard of the brand when they were given its name.
Competitive Hostility	1	Competition in the market was cut-throat.
Market Turbulence	1	For this business, customers' product preferences changed quite a bit over time.
Message Clarity	5	Explicit information was conveyed in the preannouncements.
Message Uniformity	2	We sent dissimilar messages in different preannouncements.
Message Truthfulness	3	The preannouncements were truthful indications of our future plan or actions.
Media Emphasis	4	The media emphasis on our preannouncement was elatively greater than on our competitors'
Media Favourability	2	The media covered our new product preannouncement favourably.

• Refer to Table 4.2.

strength, competitive hostility, market turbulence, message clarity, message uniformity, message truthfulness, media emphasis, and media favourability.[10]

5.5.4 Assessment of Unidimensionality

Unidimensionality denotes the existence of one single trait or common factor underlying a set of construct measures (Hattie 1985; McDonald 1981). Achieving unidimensional measurement is crucial to theory testing and development in the sense that unidimensionality is a necessary, but not sufficient, condition for construct validity (Anderson, Gerbing, and Hunter 1987; Gerbing and Anderson 1988). Unidimensional measures allow the most unambiguous assignment of meaning to respective constructs (Anderson and Gerbing 1988). In statistical terms, a set of alternate measurement indicators is unidimensional if and only if their covariation is accounted for by only one underlying factor (Kumar and Dillon 1987).

Evidence for unidimensionality, necessary or sufficient, comes from the overall fit of measurement models for sets of indicators (Kumar and Dillon 1987). In every case of the aforementioned confirmatory factor analyses, the overall fit statistics support measurement quality, meaning that all the indicators specified in the final models acceptably converge to their corresponding constructs (cf. Hughes, Price, and Marrs 1986; Steenkamp and van Trijp 1991). Accordingly, a conclusion is reached that all the measurement scales in the study possess unidimensionality.

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[10] The elimination of measurement indicators would not influence the representativeness of respective constructs. Only a sample, not a census, of effect indicators are needed to compose a construct (Bollen and Lennox 1991). It is the case herein because all the multi-item indicators in this research are effect indicators, defined as the indicators influenced by the latent constructs.

5.5.5 Assessment of Convergent Validity

Convergent validity herein is within-method convergent validity, which refers to the degree to which multiple applications of the same method to measure the same concept are in agreement (Steenkamp and van Trijp 1991). Besides an acceptable overall model fit, two more conditions must be met in order to claim convergent validity. A weak condition is that each indicator's estimated pattern coefficient on the specified factor should be statistically significant. A strong condition, in contrast, demands the coefficient to be substantial. In other words, the strong condition for convergent validity requests that the correlation between an indicator and its specified construct should exceed .50 (Hildebrandt 1991).

To evaluate if the constructs in the research are convergent, the indicator loadings on the specified factors were examined for statistical significance, now that the overall model had been accepted. As shown in Table 5.16, all items load positively on their specified constructs and the t values associated with each of the loadings exceeds 2.576, the critical value at the .01 significance level. The fact that all indicators are significantly related to their corresponding constructs verifies the posited relationships among the indicators and constructs, indicating that the scales for respective constructs possess convergent validity (Anderson and Gerbing 1988; Bagozzi and Yi 1988). As for the correlations between the indicators and their constructs, all but seven items have values greater than the 0.50 threshold, demonstrating sufficiently strong evidence in support of convergent validity. Except the indicator (Item 3) of market turbulence (with a correlation value of .30), the other

six items have correlation values between .40 to .50. The item-to-construct correlations further confirm that the measures have convergent validity.

Table 5.16
Two Criteria for Convergent Validity

Construct/ Measurement Items•	Standardised Factor Regression Coefficient	t-Value	Item-to-Construct Correlation
Brand Strength			
Item 1	0.47	5.97	0.47*
Item 3	0.64	8.39	0.64
Item 4	0.62	8.11	0.62
Item 5	0.72	9.55	0.72
Product Newness			
Item 1	0.80	12.50	0.81
Item 2	0.56	13.65	0.75
Item 3	0.94	11.48	0.73
Product Category Strength			
Item 1	0.73	10.32	0.72
Item 3	0.56	7.92	0.57
Item 4	0.94	13.57	0.94
Market Orientation-- Customer Orientation			
Item 2	0.68	8.71	0.68
Item 5	0.77	9.60	0.77
Market Orientation-- Competitor Orientation			
Item 7	0.66	9.55	0.66
Item 8	0.85	12.69	0.85
Item 9	0.76	11.21	0.76
Market Orientation-- Interfunctional Coordination			
Item 11	0.52	6.92	0.52
Item 12	0.83	11.59	0.82
Item 13	0.71	9.86	0.71
Network Externality			
Item 1	0.68	8.16	0.68
Item 2	0.66	7.95	0.66
Item 3	0.42	5.02	0.41*
Item 5	0.40	4.81	0.40*
Competitive Hostility			
Item 2	0.69	8.39	0.69
Item 3	0.57	7.04	0.57

Item 4	0.56	6.82	0.57
Item 5	0.43	5.20	0.42*
Market Turbulence			
Item 2	0.71	4.11	0.71
Item 3	0.31	3.11	0.30*
Technological Turbulence			
Item 1	0.79	12.46	0.78
Item 2	0.81	12.86	0.81
Item 3	0.46	6.33	0.46*
Item 4	0.79	12.48	0.79
Item 5	0.70	10.55	0.70
Message Clarity			
Item 2	0.78	11.99	0.78
Item 3	0.65	9.52	0.65
Item 4	0.91	14.70	0.91
Message Uniformity			
Item 1	0.76	9.57	0.76
Item 4	0.49	6.21	0.49*
Item 5	0.62	7.92	0.62
Message Truthfulness			
Item 2	0.71	7.99	0.71
Item 4	0.56	6.62	0.57
Item 5	0.53	6.22	0.53
Media Emphasis			
Item 1	0.90	15.56	0.91
Item 2	0.72	11.12	0.71
Item 3	0.83	13.80	0.84
Media Favourability			
Item 1	0.87	14.55	0.87
Item 3	0.87	14.59	0.87
Item 4	0.71	10.95	0.71
Preannouncing Effectiveness			
Item 1	0.58	7.77	0.58
Item 2	0.77	10.54	0.77
Item 3	0.74	10.02	0.73

• Refer to Table 4.2.

* value lower than 0.50.

5.5.6 Assessment of Reliability

Once unidimensionality and convergent validity have been achieved, the next step for assessing construct validity is to evaluate reliability, a necessary but not a sufficient condition for construct validity (Churchill 1979). Reliability refers to the internal consistency of the measurement indicators, which describes the extent to which measures are free from random errors and lead to consistent results (Peter 1979). In a sense, more reliable measures provide researchers with greater confidence in the usefulness of scales inasmuch as error-free measures reduce biases in the estimation of regression coefficients (Goldberger 1971).

Reliability, unidimensionality, and convergent validity are three distinct but interrelated concepts. In fact, the calculation of reliability is meaningful only if both unidimensionality and convergent validity have been achieved (Churchill 1995; Gerbing and Anderson 1988; Steenkamp and van Trijp 1991), because high reliability may exist under the circumstances of unacceptable unidimensionality (Hair, Anderson, Tatham, Black 1995) and convergent validity (Gerbing and Anderson 1988). Among various approaches to reliability, the most recommended measure is Cronbach's coefficient alpha (Peter 1979). Cronbach's alpha is important and meaningful in the sense that "it represents one test with an alternate form containing the same number of items" and that it is "the estimated correlation of a test with errorless true scores" (Nunnally 1978). One issue concerning the use of Cronbach's alpha is to decide what value can be deemed acceptable. A commonly used threshold value is .70 (Hair, Anderson, Tatham, and Black 1995). An alpha value exceeding .7

is considered adequate, especially in management studies (e.g., Eliashberg and Robertson 1988; MacKenzie, Podsakoff, and Ahearne 1998; Niehoff and Moorman 1993). The value, nevertheless, is not an absolute standard and often values below .70 can be considered acceptable, depending on the purpose of the research (Churchill 1979).

The Cronbach's alphas of the multi-item scales are reported in Table 5.17. Nine out of fourteen scales have reliabilities either equal to or greater than the suggested threshold value of .70. Four scales have reliabilities ranging from .61 to .66, which are still within the acceptable range for the studies in marketing (cf. Cavusgil and Zou 1994; Ganesan 1994; Greenley and Foxall 1998; Kohli, Shervani, and Challagalla 1998; Meznar and Nigh 1995). The alpha values for the thirteen constructs demonstrate adequate internal consistency. However, the scale of market turbulence shows a relatively low reliability value (.35), indicating a lack of internal consistency. In the circumstances, researchers resort to two different empirical approaches to resolving the low reliability issue. Deshpande, Farley, and Webster (1993) retained an unreliable construct in order to keep an integral conceptual framework, whereas Narver and Slater (1990) eliminated two constructs with low reliabilities from their market orientation study lest the constructs obfuscated the structural relationships. To the extent that the alpha value of market turbulence is below the acceptable level (Churchill and Peter 1984), it is more appropriate to eliminate the market turbulence construct rather than to retain them for subsequent analyses (Churchill 1979). In Section 8.5, a discussion will be provided as to the

influence of removing the construct of market turbulence from the hypothesised model.

Table 5.17
Reliabilities of the Constructs

Construct	Cronbach's Coefficient Alpha
Brand Strength	0.70
Product Newness	0.85
Product Category Strength	0.78
Market Orientation	0.80
Network Externality	0.61
Competitive Hostility	0.64
Market Turbulence	0.35
Technological Turbulence	0.83
Message Clarity	0.81
Message Uniformity	0.66
Message Truthfulness	0.61
Media Emphasis	0.85
Media Favourability	0.86
Preannouncing Effectiveness	0.73

5.5.7 Assessment of Discriminant Validity

Discriminant validity refers to the extent to which the measures of different constructs are distinguishable from each other (Bagozzi, Yi, and Philips 1991). As valid measures of two distinct constructs should not be highly correlated, discriminant validity can therefore be assessed by constraining the estimated correlation between the constructs to unity and then calculate the difference between the chi-square values obtained for the constrained and unconstrained models (Joreskog 1971). If the chi-square value of an unconstrained model is significantly lower than that of a constrained one, then it means that the two constructs are not perfectly correlated and that discriminant validity is achieved (Baggozzi and Philips 1982). The chi-square

difference tests should be conducted pairwise, i.e., only two constructs should be tested at a time (Anderson and Gerbing 1988).

Following the aforementioned procedure of assessing discriminant validity, a series of confirmatory factor analyses were conducted using four sets of construct measures. For each set of measures, an unconstrained model was first estimated with all the constructs freely correlated, and then unconstrained models were obtained by restricting pairs of constructs to be perfectly correlated (i.e., their correlation = 1.00). Chi-square difference statistics with one degree of freedom were computed through comparisons between the unconstrained and constrained models. In total, nineteen factor analysis models were conducted and fifteen pairs of comparisons were involved in the tests (see Table 5.18). All but one chi-square differences are significant at the .001 level and the only exceptional one is significant at .01 level. The results suggest that the constructs exhibit discriminant validity.

It is worth noting that the unconstrained model for the constructs of network externality, competitive hostility, and technological turbulence was re-estimated without including market turbulence (see the analysis 2 in Table 5.18). The re-estimated result is consistent with the findings for the previous model including market turbulence in that the χ^2 statistic indicates a good model fit as well. Moreover, discriminant validity is found for media emphasis and media favourability ($\Delta\chi^2 = 26.40$, df = 1, $p < .001$), which again confirms the previous conclusion with respect to the distinction between the two constructs.

Table 5.18
Results of Discriminant Validity Tests

Model	χ^2	df	p	Model Comparison $\Delta\chi^2$	Δdf	p
Factor Analysis 1						
1. Brand Strength (ξ_1), Product Newness (ξ_2), Product Category Strength (ξ_3), Market Orientation (ξ_4)	72.00	59	0.12			
2. Φ (ξ_1, ξ_2)*	129.07	60	< 0.001	57.07	1	< 0.001
3. Φ(ξ_1, ξ_3)*	79.58	60	0.046	7.58	1	< 0.01
4. Φ(ξ_1, ξ_4)*	109.59	60	< 0.001	37.59	1	< 0.001
5. Φ(ξ_2, ξ_3)*	90.87	60	< 0.01	18.87	1	< 0.001
6. Φ(ξ_2, ξ_4)*	140.26	60	< 0.001	68.26	1	< 0.001
7. Φ(ξ_3, ξ_4)*	95.52	60	< 0.01	23.52	1	< 0.001
Factor Analysis 2						
8. Network Externality (ξ_1), Competitive Hostility (ξ_2), Technological Turbulence (ξ_3)	76.98	62	0.095			
9. Φ(ξ_1, ξ_2)*	88.64	63	0.018	11.68	1	< 0.001
10. Φ(ξ_1, ξ_3)*	95.94	63	< 0.01	18.96	1	< 0.001
11. Φ(ξ_2, ξ_3)*	110.55	63	< 0.001	33.57	1	< 0.001
Factor Analysis 3						
12. Message Clarity (ξ_1), Message Uniformity (ξ_2), Message Truthfulness (ξ_3)	41.77	24	0.014			
13. Φ(ξ_1, ξ_2)*	51.03	25	< 0.01	9.26	1	< 0.001
14. Φ(ξ_1, ξ_3)*	58.93	25	< 0.001	17.16	1	< 0.001
15. Φ(ξ_2, ξ_3)*	64.19	25	< 0.001	22.42	1	< 0.001
Factor Analysis 4						
16. Media Emphasis (ξ_1), Media Favourability (ξ_2), Preannouncing Effectiveness (ξ_3)	31.02	24	0.15			
17. Φ(ξ_1, ξ_2)*	57.42	25	< 0.001	26.40	1	< 0.001
18. Φ(ξ_1, ξ_3)*	46.61	25	< 0.01	15.59	1	< 0.001
19. Φ(ξ_2, ξ_3)*	46.72	25	< 0.01	15.70	1	< 0.001

* The correlation was restricted to one.

5.5.8 Assessment of Nomological Validity

In addition to establishing a relationship between a construct and its observed indicators, linking the construct with other constructs according to some theory is an additional way to establish the meaning of the construct (Bagozzi 1980; Gerbing and Anderson 1988). Nomological validity refers to the extent to which predictions of a construct with respect to other constructs within a nomological network are confirmed (Bagozzi 1980; Campbell 1960; Churchill 1995). A nomological network is the diagram depicting the relationships among a set of constructs based on theoretical reasoning (Churchill 1995). In other words, the nomological validity of a construct is achieved by verifying its relationships with other constructs that are theoretically expected.

Steenkamp and van Trijp (1991) argue that neither correlation nor regression analysis is capable of assessing nomological validity. Both methods are subject to the biasing effect of measurement errors on the estimates of the relationships among constructs, and they are unable to conduct a formal test of the nomological net. On the contrary, the two-step approach to structural equation modelling (Anderson and Gerbing 1988) represents a comprehensive and confirmatory way of assessing nomological validity. This approach separates the evaluation of the measurement model from the test of the structural model and it allows for exploring the nomological network (Gerbing and Anderson 1988). Given acceptable convergent and discriminant validity, an assessment of nomological validity for the constructs

was conducted through the subsequent structural equation modelling analyses, which will be described in Chapter 6.

5.5.9 The Final Measurement Scales

Thirteen multi-item measurement scales were refined and finalised after the construct validation. As an unweighted sum or average of the item scores is most often used by marketing research to estimate the construct value (Steenkamp and van Trijp 1991), each of the finalised scales in the study was established using a composite score calculated as an unweighted average of scores on the measurement items (Bollen and Lennox 1991). Without exception, the score of the market orientation construct was computed by equally weighting and adding the item scores on all its three subscales (Slater and Narver 1994). Table 5.19 provides a summary of the final scales.

Table 5.19
Summary of the Final Scales

Construct/ Items Number•	Measurement Item
Brand Strength	
Item 1	People tended to mention the brand name first when thinking of the product category.
Item 3	The level of quality customers associated with the brand was very high.
Item 4	Customers regarded the brand as a very low-value brand.
Item 5	Customers were highly willing to use the brand.
Product Newness	
Item 1	It required a major learning effort by customers.
Item 2	It took a long time before customers could understand its full advantages.
Item 3	The product concept was difficult for customers to evaluate or understand.
Product Category Strength	
Item 1	We had one of the highest market shares in this product

	category.
Item 3	Our competitors were relatively weaker in terms of competitive power in the product category.
Item 4	We enjoyed a leading position in the product category.
Market Orientation	
Item 2	Commitment to serving customer needs was monitored.
Item 5	Customer satisfaction was frequently and systematically measured.
Item 7	Our salespeople shared information on competitors' strategies.
Item 8	We responded quickly to competitors' actions.
Item 9	Top Managers regularly discussed competitors' strengths and weaknesses.
Item 11	Managers from different functional departments regularly visited customers.
Item 12	Information about customer experiences was always communicated and shared among different functional departments.
Item 13	Business functions were integrated to serve target market needs.
Network Externality	
Item 1	A potential customer's adoption of a new product was influenced by the number of current users of the existing or compatible products.
Item 2	The risks of adopting a product for non-users decreased as the number of its current adopters increased.
Item 3	Compatible designs were particularly desirable in the industry.
Item 5	A product in the market became more valuable as the number of adopters of the product increased.
Competitive Hostility	
Item 2	Competitors were always able to match their opponents' market attacks readily.
Item 3	Competition existed in a variety of aspects, e.g., pricing, quality, service, etc.
Item 4	Price competition was a hallmark of the market.
Item 5	There were frequent product introductions or modifications.
Technological Turbulence	
Item 1	The technology in our industry was changing rapidly.
Item 2	Technological changes provided big opportunities in our industry.
Item 3	It was very difficult to forecast where the technology in our industry would be in the next 2 to 3 years.
Item 4	A large number of new product ideas had come from

	technological breakthroughs in our industry.
Item 5	Technological developments in our industry were only minor. (Reverse)
Message Clarity	
Item 2	We communicated the messages in a precise way.
Item 3	We avoided vague expression in the preannouncements.
Item 4	The preannouncements were stated as specifically as possible.
Message Uniformity	
Item 1	The preannounced messages were consistent with one another from beginning to end.
Item 4	In the meantime, the messages preannounced in different markets were uniform.
Item 5	Late preannouncements did not contradict early preannouncements.
Message Truthfulness	
Item 2	Bluffs were very commonly used in the messages contained in the preannouncements. (Reverse)
Item 4	The preannouncements contained false messages. (Reverse)
Item 5	All the preannounced messages were verifiable.
Media Emphasis	
Item 1	The preannouncement generated major media coverage.
Item 2	The preannouncement attracted little attention from the media. (Reverse)
Item 3	Most of the media highlighted the preannouncement.
Media Favourability	
Item 1	The media made supportive remarks about the focal product.
Item 3	The media had a high opinion of the preannounced product.
Item 4	The media coverage was consistent with what we wanted to present.
Preannouncing Effectiveness	
Item 1	Objective-Attainment Performance
Item 2	Performance Relative to the Previous Preannouncements
Item 3	Performance Relative to Key Competitors' Preannouncements

• Refer to Table 4.2.

5.6 Summary

Overall, this chapter described the sample characteristics and the preliminary data analysis, including basic data processing and construct validation. The discussion of the sample characteristics encompasses response rates, sample profile, tests for nonresponse bias, and the justification for using key informants. The data analysis began with the editing, coding, or transformation of the data. The multi-item constructs in this research were validated through the assessment of unidimensionality, convergent validity, reliability, discriminant validity, and nomological validity. The finalised measurement scales were subsequently used in the structural equation modelling for testing the proposed hypotheses. Chapter 6 will discuss the processes and results of the hypothesis testing.

Chapter 6

Descriptive Findings and Hypothesis Testing

6.1 Introduction

Following Chapter 5, this chapter continues to discuss the processes and results of the data analysis. Two main parts of the data analysis are presented in the chapter, i.e., descriptive findings and the testing of the proposed hypotheses. Section 6.2 provides a discussion of the first part of data analysis, which briefly describes several characteristics of the phenomena of interest. Section 6.3 focuses on the second part. It depicts the use of structural equation modelling to assess the hypothesised relationships among the constructs. Finally, Section 6.4 concludes this chapter.

6.2 Descriptive Findings

Each new product was reported as belonging to one of the following four classes: a product improvement, a line extension, a new product line, and a new-to-the-world innovation. The product classification was made from the viewpoint of respective companies. Of the 197 preannounced new products, forty seven (23.9%) are merely product improvements. Twenty nine products (14.7%) belong to the category of a line extension. The majority of the new product type is a new product line, with 93 products (47.2%) in this group. Twenty eight new products (14.2%) are regarded by their companies as new-to-the-world innovations.

As shown in Table 6.1, customers are considered the most important audience, followed by the industrial experts or opinion leaders. Channel members, with an

average importance value of 4.75, are also a major preannouncing audience. Suppliers, producers of complementary products, and shareholders have nearly the same degree of importance as the audiences of new product preannouncement. The relatively lower importance values for these three audiences indicate that they are not the focus of new product preannouncements. Consistent with the findings of Eliashberg and Robertson (1988), competitors are not a major audience to which the preannouncements are disseminated. The average importance value for competitors is only 2.67.

Table 6.1
Importance of Target Audience

Audience	Mean	Standard Deviation
Customers	6.62	.76
Experts/Opinion Leaders	5.08	.171
Channel Members	4.75	2.12
Suppliers	3.50	2.08
Producers of Complementary Products	3.34	1.89
Shareholders/Financial Community	3.16	1.90
Competitors	2.67	1.78

Note: 1 = "Not at All Important" and 7 = "Extremely Important".

Among the communication channels for new product preannouncement, business meeting, word of mouth, trade shows and conferences, and trade publications are regarded as the most important. The importance of word of mouth and trade shows and conferences is noteworthy in that they have not been previously recognised as important communication channels by Robertson, Eliashberg, and Rymon (1995). Press announcements are also an important communication channel

used by companies for preannouncing their new products. In the view of the preannouncing firms, direct mail and internet emerge as new important channels for conveying preannounced messages.

Table 6.2
Importance of Communication Channels

Communication Channel	Mean	Standard Deviation
Business Meetings	5.44	1.62
Word of Mouth	5.27	1.62
Trade Show and Conferences	5.20	1.90
Trade Publications	5.13	1.95
Press Announcements	4.72	2.15
Direct Mail	4.51	2.17
Internet	4.18	2.18
Magazines	3.86	2.19
Speeches	3.22	1.80
Memorandums	2.94	1.82
Newspapers	2.60	1.91
Annual Reports	2.46	1.77

Note: 1 = "Not at All Important" and 7 = "Extremely Important".

The preannouncing frequency in respective communication channels shows a similar pattern to the importance of the channel (see Table 6.3). This means that, generally, the preannouncing firms use the channels they considered important more frequently than they do those they consider less important. Word of mouth and business meetings, two of the most important communication channels, are the two most frequently-used channels for preannouncing new products. Another relatively popular channel for the dissemination of the preannounced messages is trade publications. Other frequently used communication channels include direct mail, trade shows and conferences, internet, and press announcements.

Table 6.3
Frequency of New Product Preannouncement Across Communication Channels

Communication Channel	Mean	Standard Deviation
Word of Mouth	4.80	1.81
Business Meetings	4.66	1.82
Trade Publications	3.98	1.87
Direct Mail	3.78	2.12
Trade Show and Conferences	3.66	1.76
Internet	3.63	2.21
Press Announcements	3.57	1.96
Magazines	3.11	1.99
Memorandums	2.55	1.82
Speeches	2.43	1.60
Newspapers	2.07	1.55
Annual Reports	1.79	1.29

Note: 1 = "Extremely Infrequently" and 7 = "Extremely Frequently".

Table 6.4 shows the ranking of respective objectives for preannouncing new products, which are sorted in terms of their proportions of being chosen. The most frequently cited objective for preannouncing new products is to evoke curiosity and interest of customers. The second most popular objective for the preannouncement is to gain favourable word of mouth, followed by seeking customers' feedback. To preempt competitors is the fourth most popular reason for preannouncing. Another frequently chosen customer-related objective is to reduce customer adoption resistance.

As shown in Table 6.5, the most frequently conveyed message cues are the performance and features or components of the preannounced products. Product quality is the third most frequently preannounced message cue. It is also indicated that new products are typically preannounced with brand names attached to them.

Other frequently conveyed message cues include new ideas and the price- or value-related information.

Table 6.4
Objectives of Preannouncing and Their Level of Importance

Objective of Preannouncing	Proportion
Evoke curiosity and interest	84.8%
Gain favourable word of mouth	55.8%
Seek customers' feedback	54.3%
Pre-empt competitors	51.8%
Reduce customer adoption resistance	50.3%
Enhance customer learning	41.6%
Obtain support of distributors	38.6%
Counterattack competitive moves	33.0%
Lower customer switching costs	20.8%
Stimulate the generation of complementary products	17.3%
Observe competitors' reaction	16.8%
Impress current and potential shareholders	16.2%
Seek feedback from those other than customers and competitors	13.2%
Seek competitive norms of conduct	6.6%

Table 6.5
Message Cues in New Product Preannouncement

Message Cue	Mean	Standard Deviation
Performance	5.93	1.09
Features or Components	5.84	1.20
Quality	5.53	1.38
Brand Name	5.13	2.00
New Ideas	4.48	1.95
Price or Value	4.07	2.00
Availability	3.91	1.81
Package or Shape	3.68	2.29
Launch Plan	3.21	1.83
Research Findings	3.20	2.08
Guarantee or Warrantees	2.87	1.94
Special Offer	2.07	1.57

Note: 1 = "Never Conveyed" and 7 = "Fully Conveyed".

6.3 Hypothesis Testing

Structural equation modelling served to test the hypothesised relationships among the constructs. A software package LISREL (LInear Structural RELations) was applied to execute the modelling for it is the most widely used software for this statistical technique (Byrne 1998; Hayduk 1987; Jaccard and Wan 1996; Long 1983). Because of the importance of structural equation modelling in the data analysis, an overview of this method is provided in Appendix C.

The construct validation, as described in Chapter 5, produced thirteen finalised multi-item scales (see Table 5.19). These thirteen validated multi-item constructs, along with the four single-indicator constructs (refer to Section 5.4), were incorporated into an operational model, shown in Figure 6.1, for subsequent hypothesis testing. The operational model was a modified version of the hypothesised model by removing the constructs of visibility and market turbulence. Accordingly, the hypotheses describing the links of the two deleted constructs with other constructs were eliminated from the testing. All the thirteen multi-item constructs were represented by their corresponding summated scores which were calculated using equally weighted scales developed from the construct validation. The summated scores were used to reduce model complexity and achieve an acceptable variable-to-sample-size ratio in the model estimation (cf. Calantone, Schmidt, Song 1996; Cavusgil and Zou 1994; Li and Calantone 1998; MacKenzie, Podsakoff, and Ahearne 1998; Price, Arnold, and Tierney 1995). The use of summated scores resulted in a more parsimonious model (Babin and Boles 1998). As such, each of the seventeen

constructs was represented by one single score in the structural equation modelling. The covariance matrix of these seventeen constructs was used as the input matrix.

6.3.1 Data Screening

The data subjected to structural equation models were first screened to meet the requirements for the use of structural equation modelling. The data screening was performed by the PRELIS programme. Table 6.6 illustrates the descriptive statistics of the seventeen constructs. The statistics of these constructs are well within a reasonable range for normality (Byrne 1998). With the magnitude of skewness and kurtosis less than 2.0, the data can be judged as normally distributed.

Table 6.6
Descriptive Statistics of the Constructs

Construct	Mean	Standard Deviation	Skewness	Kurtosis
Brand Strength	4.533	1.172	-0.604	0.291
Product Newness	3.252	1.402	0.353	-0.550
Firm Size	2.062	1.038	0.821	0.340
Product Category Strength	4.044	1.611	-0.075	-0.977
Market Orientation	4.834	0.918	-0.718	1.036
Network Externality	4.614	1.022	-0.388	-0.141
Competitive Hostility	4.265	1.076	-0.237	0.188
Technological Turbulence	4.653	1.279	-0.275	-0.396
Preannouncing Timing	2.033	0.483	-0.690	0.789
Preannouncing Frequency	4.501	0.977	-0.712	1.592
Message Clarity	5.304	1.214	-0.635	0.566
Message Uniformity	5.238	1.162	-0.289	-0.335
Message Truthfulness	6.054	0.952	-1.151	0.729
Message Content	4.159	0.817	0.274	-0.064
Media Emphasis	3.272	1.715	0.382	-0.907
Media Favourability	4.175	1.534	-0.479	-0.511
Preannouncing Effectiveness	5.029	0.821	-0.426	0.714

The correlations between these constructs are shown in Table 6.7. The overall pattern of correlations shows that these correlations are well within a reasonably acceptable range. None of them exceeds .80, a threshold that may be indicative of problems (Hair, Anderson, Tatham, and Black 1995). Only the correlation between media emphasis and media favourability exhibits a larger value (0.68). It is therefore concluded that the problems concerning multicollinearity and identification should not become a severe issue in the estimation of structural relationships among these constructs (Hayduk 1987; Jagpal 1982).

6.3.2 Model Specification

The operational model in Fig. 6.1 is a path diagram that depicts the structural relationships among the constructs. For model estimation, the structural relationships were specified in terms of the beta and gamma matrices, shown in Table 6.8 and 6.9. The beta matrix was a matrix of coefficients that related the endogenous constructs to one another. In contrast, the gamma matrix was a matrix of coefficients that related the exogenous constructs to the endogenous constructs.

The paths showing the structural relationships, as shown in Figure 6.1, were converted into a model of structural equations. In this full structural equation model, the measurement model was a priori. That is, the measurement parameters of the seventeen constructs were fixed at certain derived or specified values, rather than estimated simultaneously with the parameters of the structural model. In so doing, the knowledge of measurement errors associated with the empirical data could be

TABLE 6.7

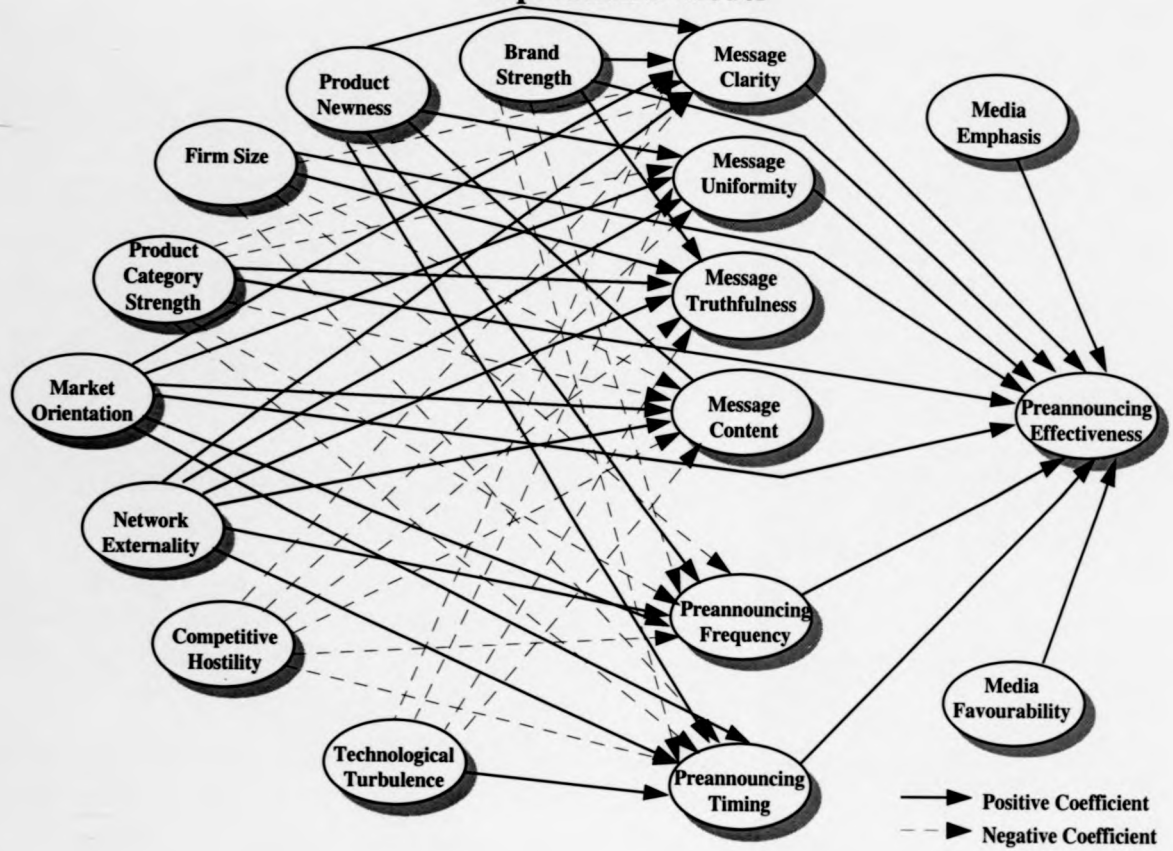
Correlations of the Model Constructs

Construct	BS	PN	FS	PCS	MO	NE	CH	TT	PT	PF	MC	MU	MT	CO	ME	MF	PE
Brand Strength (BS)	1.00																
Product Newness (PN)	-.13	1.00															
Firm Size (FS)	.10	.19*	1.00														
Product Category Strength (PCS)	.28*	.01	.05	1.00													
Market Orientation (MO)	.17•	-.08	-.14•	.15•	1.00												
Network Externality (NE)	.08	.15•	.03	-.09	.06	1.00											
Competitive Hostility (CH)	.05	.07	.25*	-.18•	.04	.27*	1.00										
Technological Turbulence (TT)	-.05	.17•	.06	.09	.08	.18•	.02	1.00									
Preannouncing Timing (PT)	.02	.17•	.12	.15•	-.03	.19*	-.09	.22*	1.00								
Preannouncing Frequency (PF)	.04	.00	-.09	.18•	.10	.00	-.01	.04	-.13	1.00							
Message Clarity (MC)	.31*	-.21*	-.16•	.09	.22*	.00	-.04	-.02	-.15•	.05	1.00						
Message Uniformity (MU)	.15•	-.15•	-.05	.04	.27*	-.02*	-.02	-.09	-.11	.08	.40*	1.00					
Message Truthfulness (MT)	.06	-.03	-.12	.05	.08	-.07	-.14	-.15•	-.15•	-.03	.35*	.26*	1.00				
Message Content (CO)	.29*	.03	.12	.13	.33*	.21*	.20*	.01	-.01	.11	.27*	.21*	.02	1.00			
Media Emphasis (ME)	.16•	.08	.27*	-.05	-.08	.03	.06	.10	.01	.04	-.02	.12	-.02	.07	1.00		
Media Favourability (MF)	.14•	.05	.21*	-.06	.02	.02	.07	.11	.06	-.04	.01	.12	-.13	.10	.68*	1.00	
Preannouncing Effectiveness (PE)	.24*	.00	.32*	.21*	.20*	.02	.02	.09	.11	.16•	.08	.27*	.04	.31*	.37*	.38*	1.00

•significant at the .05 level

*significant at the .01 level

Figure 6.1
Operational Model



incorporated into model development and estimation, lest the errors introduced bias in the estimates of the structural coefficients (Hayduk 1987).

Table 6.8
Model Specification: Beta Matrix

	PT	PF	CO	MT	MU	MC	PE
Preannouncing Timing (PT)							
Preannouncing Frequency (PF)							
Message Content (CO)							
Message Truthfulness (MT)							
Message Uniformity (MU)							
Message Clarity (MC)							
Preannouncing Effectiveness (PE)	+	+			+	+	

+: Coefficient parameters hypothesised to be positive

Table 6.9
Model Specification: Gamma Matrix

	ME	MF	BS	PN	FS	PCS	MO	NE	CH	TT
Preannouncing Timing			–	+	–	–	+	+	–	–
Preannouncing Frequency			–	+	–	–	+	+	–	
Message Content				+	–	–	+	+	–	–
Message Truthfulness			+		+	–		+	–	–
Message Uniformity				+		–	+	+	–	–
Message Clarity			+	–	–	–	+	+	–	–
Preannouncing Effectiveness	NA	NA	+		+	+	+			

+: Coefficient hypothesised to be positive.
–: Coefficient parameter hypothesised to be negative.
NA: No hypothesis provided.
Note: ME: Media Emphasis; MF: Media Favourability; BS: Brand Strength; PN: Product Newness; FS: Firm Size; PCS: Product Category Strength; MO: Market Orientation; NE: Network Externality; CH: Competitive Hostility; TT: Technological Turbulence.

The means of coping with the measurement errors involved constraining the factor loading, theta delta matrix, and theta epsilon matrix to predetermined values (Hair,

Anderson, Tatham, and Black 1998). For each of the multi-item summated constructs, its factor loading (λ) was set at the square root of its Cronbach's alpha value (cf., Niehoff and Moorman 1993), which had been estimated a priori. A conservative value of .85 was chosen as a proxy for the reliability of each single-indicator construct (cf. Williams and Hazer 1986) and the associated factor loading was specified as the square root of the desired reliability. On the other hand, the error term of each construct, i.e., each of the diagonal elements in the theta delta and theta epsilon matrices, was fixed at 1 minus reliability times the observed variance of the construct [$(1 - \alpha)\sigma^2$], as recommended by Joreskog and Sorbom (1996).

In the research context, there were 17 latent constructs each of which was represented by one observed variable. As such, the covariance matrix was composed of 153 [17(17+1)/2] nonredundant elements. The structural model encompassed 10 exogenous and 7 endogenous constructs, among which 52 structural relationships were specified. The number of free parameters (114) was equal to the number of structural coefficient parameters (52) plus the number of free parameters in the phi matrix [55 = (10(10+1)/2)] and psi matrix (7). Hence, the degree of freedom for the specified model was 39 (153 – 114), indicating that there was a sufficient number of data points to obtain a unique solution for the free parameters (Chou and Bentler 1995). This means that the specified model was an overidentified model, meeting a necessary condition for the achievement of statistical identification (Byrne 1998).

6.3.3 Model Estimation and Comparison

The structural equation modelling was conducted using the maximum likelihood estimation method in LISREL 8.2. The "best" model was determined through a combined use of model comparison and model development. In this manner, the operational model was first subjected to a rigorous test that compared the model with a set of alternative models. The surviving model, in case of an inadequate model fit, was then respecified through modifications in accordance with the underlying theory.

In model comparison, the operational model was compared with a null model and four competing models by way of a nested models analysis (cf. Anderson and Gerbing 1988). The specifications of the operational, null, and competing models are illustrated in Table 6.10. The better-fitting model was determined according to evaluation of the goodness-of-fit statistics between the focal model and the other five models (Bentler and Bonnet, 1980; James, Mulaik, and Brett, 1982). The null model proposed no causal

Table 6.10
Descriptions of the Operational and Alternative Models

Model	Structural Specification
OM	The operational model.
CM1	Paths from the brand/product and market characteristics to the preannouncing effectiveness are restricted to zero.
CM2	Paths from the situational factors to the new product preannouncing behaviours are restricted to zero.
CM3	Paths from the new product preannouncing behaviours to the preannouncing effectiveness were restricted to zero.
CM4	Paths from the market characteristics to preannouncing effectiveness are freely estimated.
NM	The null model.

Note: OM: The Operational Model; CM1: Competing Model 1; CM2: Competing Model 2; CM3: Competing Model 3; CM4: Competing Model 4; NM: The Null Model.

relationships among respective constructs. The first three competing models were nested within the operational model, which was in turn nested within the fourth competing model (cf. Anderson and Gerbing 1988).

The first competing model, as illustrated in Figure 6.2, tested the hypotheses predicting that the characteristics of brand/product and firm directly influence the effectiveness of new product preannouncement. This competing model argued that the influences of the brand/product and market characteristics on new product preannouncing effectiveness are completely mediated by the strategic behaviours of new product preannouncement. The underlying rationale comes from the coalignment principle, which advocates the environment → firm behaviour → performance paradigm (Cavusgil and Zou 1994; Li and Calantone 1998). As such, the first competing model differed from the operational model in that the paths from the brand/product and firm characteristics to the preannouncing effectiveness were specified at zero.

The second competing model tested the hypotheses that the characteristics of brand/product, firm, and market have direct impacts on the strategic behaviours of new product preannouncement. As shown in Figure 6.3, this competing model examined the relevance of these situational factors to new product preannouncing behaviours. It is possible that the situational factors may not sufficiently account for the behaviours involved in preannouncing new products. In a similar vein, the paths from the situational factors to the strategic behaviours were restricted to zero in the competing model.

The third competing model tested the hypotheses depicting the link between the strategic behaviours and effectiveness of new product preannouncement. In this third model, the behavioural constructs have no effects on the preannouncing effectiveness in

Figure 6.2
Competing Model 1

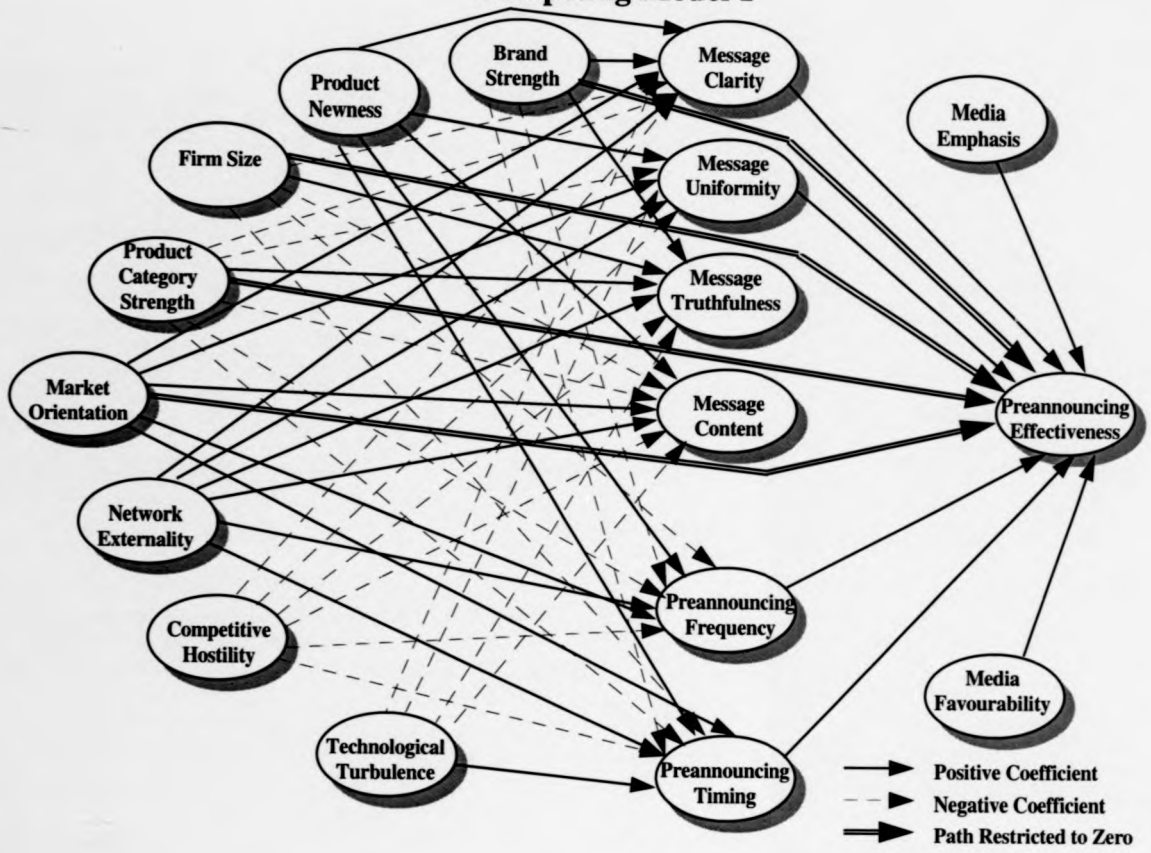
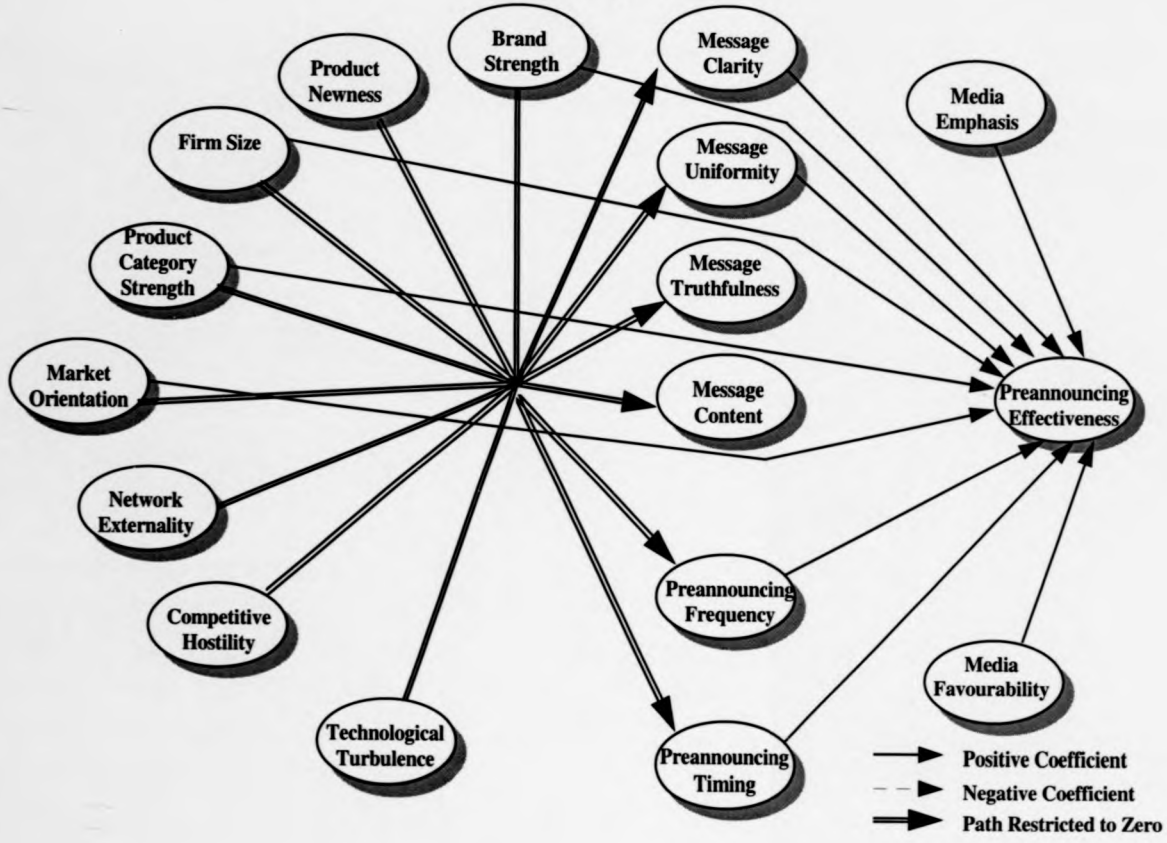


Figure 6.3
Competing Model 2



that the effectiveness may be somewhat independent of the executions of new product preannouncements or other exclusive behavioural constructs may have more substantial influence on the effectiveness than do the currently used constructs (cf. Govindarajan 1988). The parameters of the paths from preannouncing behaviours to the effectiveness were constrained to zero. Figure 6.4 illustrates the third competing model.

Finally, the fourth competing model, as shown in Figure 6.5, examined the impacts of market characteristics on the preannouncing effectiveness. It represented the next most likely unconstrained alternative to the operational model (Anderson and Gerbing 1988). This competing model argued for the existence of direct causal paths linking external environmental factors to preannouncing effectiveness (cf. Green, Barclay, and Ryan 1995; Szymaski, Bhardwaj and Varadarajan 1993). In the model, the three constructs of market characteristics, network externality, competitive hostility, and technological turbulence, impose direct influences on preannouncing effectiveness.

A series of pairwise comparisons between the operational model and the null and competing models were conducted to determine which model better accounts for the observed data. As the operational and other five alternative models were nested, the models were compared on the basis of $\Delta\chi^2$ statistics (Hoyle 1995). Table 6.11 demonstrates the results of model comparisons.

The operational model shows a mediocre fit to the empirical data, indicating that model modifications were necessary. The chi-square statistic, 95.80 with 39 degrees of freedom, is highly significant ($p < .001$). The comparative fit index (CFI) is .88, goodness-of-fit index (GFI) is .94, and adjusted goodness-of-fit index (AGFI) is .78. The

Figure 6.4
Competing Model 3

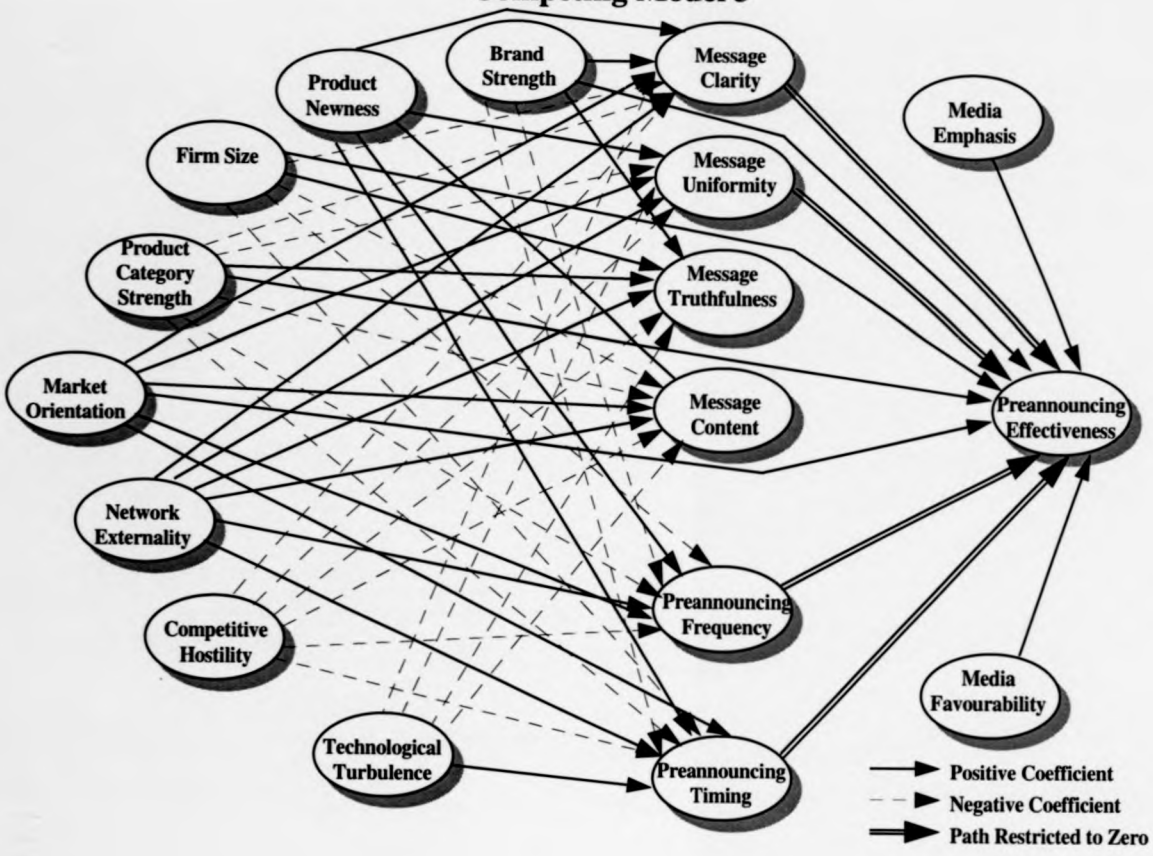


Figure 6.5
Competing Model 4

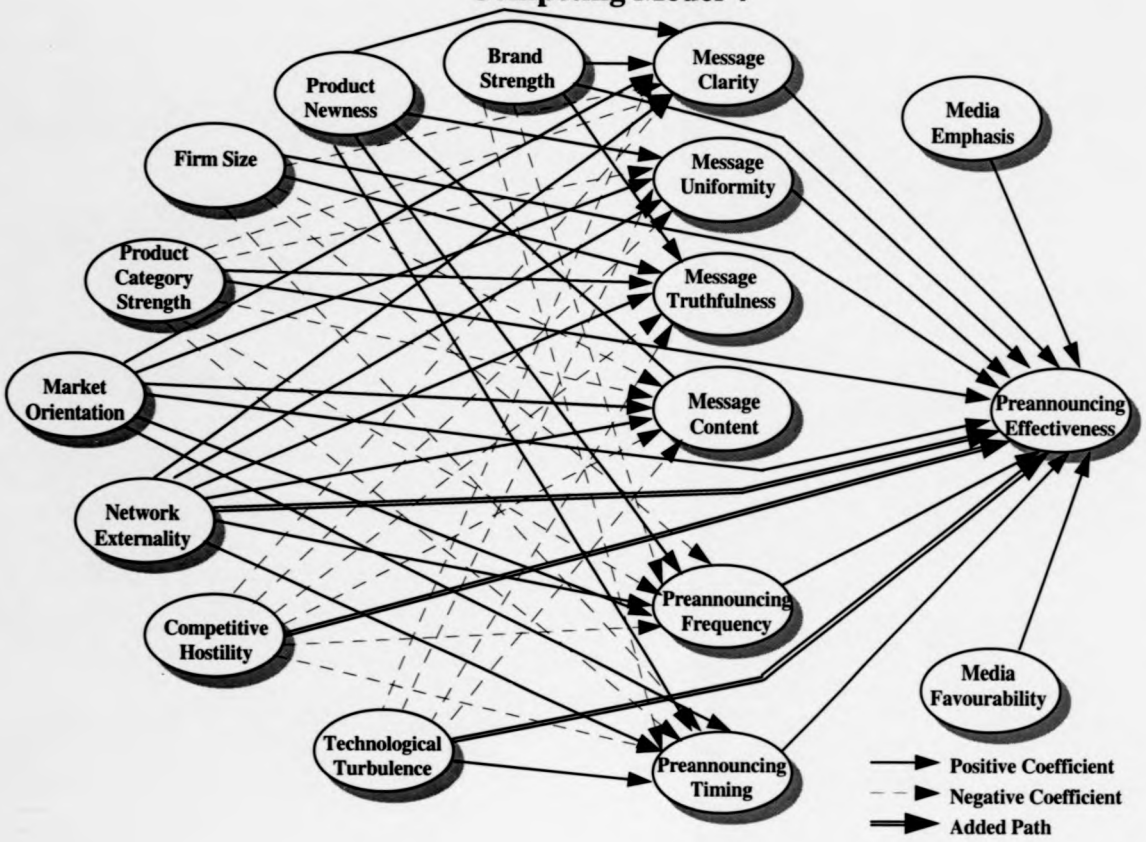


Table 6.11
Model Comparisons

Model	χ^2	df	p	$\Delta\chi^2$	Δdf	p	CFI	GFI	AGFI	NFI	NNFI	PGFI	RMSEA	RMR
OM	95.80	39	< .001	-	-	-	.88	.94	.78	.84	.58	.24	.090	.063
CM1	123.99	43	< .001	28,19	4	< .001	.83	.93	.75	.80	.45	.26	.10	.067
CM2	256.82	81	< .001	161.02	42	< .001	.63	.86	.74	.58	.37	.46	.11	.12
CM3	107.77	42	< .001	11.97	3	< .01	.86	.94	.77	.82	.55	.26	.093	.064
CM4	93.47	35	< .001	2.33	4	> .1	.87	.94	.76	.85	.51	.22	.096	.063
NM	346.31	91	< .001	250.51	52	< .001	.46	.82	.69	.43	.19	.49	.12	.14

Note: OM: The Operational Model; CM1: Competing Model 1; CM2: Competing Model 2; CM3: Competing Model 3; CM4: Competing Model 4; NM: The null model.

normed fit index (NFI) is .84, non-normed fit index (NNFI) is .58, the root mean square error of approximation (RMSEA) is .09, and root mean square residual (RMR) is .063. Except the GFI, the other goodness-of-fit statistics are somewhat below the acceptable levels for these indices.

Although the operational model has only moderate fit to the sample data, the comparisons between it and the null and competing models demonstrate the relative advantages of the operational model over the other models. Model comparisons were conducted using the chi-square difference between pairwise models as an evaluation criterion. The chi-square difference itself is also a chi-square statistic (Bentler 1980). The chi-square difference statistics between the operational model and the constrained models, i.e., the null model and the first, second, and third competing models, are all significant at either .01 or .001 levels. The results suggest that the operational model is superior to the null model and the first three competing models in terms of overall model fit.

In contrast, the chi-square difference statistic between the operational model and the fourth competing model indicates no significant difference between these two models ($p > .1$). The difference statistic indicates that the two comparing models are not significantly different in model fit, given that the unconstrained model (the fourth competing model) loses 4 degrees of freedom. Joreskog and Sorbom (1993) recommend that, when comparing a set of models, model parsimony should also be taken into account. The parsimony goodness-of-fit index (PGFI) values of the operational model and the fourth competing model confirm that the operational model possesses more

parsimony without the loss of model fit. That is, the operational model has a better fit per estimated coefficient. Although the second and third models show slightly better model parsimony, the parsimony was minor compared with the loss of model fit. The first competing model and the null model gain substantial model parsimony since they are two more constrained models. However, the two models lose their model fit to a large extent. In conclusion, all the evidence shows that, compared with the other five models, the operational model is a better-fitting model.

6.3.4 Initial Structural Model Results

The research hypotheses were examined by testing the structural coefficient estimates. Table 6.12 presents the initial assessment of the hypotheses 1, 2, 4, and 5. Hypothesis 3 was eliminated from the testing in that it involved a deleted construct--visibility. All the parameter estimates were transformed into a completely standardised form by removing scaling information. In so doing, it was possible to compare parameter estimates throughout the model (Hoyle 1995). The results show that Hypothesis 1 is not supported, while Hypotheses 2, 4, and 5 are supported respectively at significance levels of .01, .05, and .1.

Table 6.13 illustrates the initial analytical results concerning the test of Hypotheses 6a and 6b. Hypothesis 6a (1) is supported and significant at the .01 level; Hypothesis 6a (2) is supported at a .1 significance level. Although the signs of the estimated coefficients for Hypotheses 6a (3), 6a (4), and 6b are as expected, the t-values of the coefficients, however, are nonsignificant.

TABLE 6.12
Initial Assessment of Hypotheses 1, 2, 4, and 5

Causal Path	Hypothesis	Expected Sign	Path Coefficient (Standardised)	t-value
Message Clarity → Preannouncing Effectiveness	H_1	+	-.05	-.55
Message Uniformity → Preannouncing Effectiveness	H_2	+	.27***	2.88
Frequency → Preannouncing Effectiveness	H_4	+	.18**	2.31
Timing → Preannouncing Effectiveness	H_5	+	.12*	1.50

*p < .1
**p < .05
***p < .01

TABLE 6.13
Initial Assessment of Hypotheses 6a and 6b

Causal Path	Hypothesis	Expected Sign	Path Coefficient (Standardised)	t-value
Brand Strength → Message Clarity	H_{6a} (1)	+	.47***	3.88
Brand Strength → Message Truthfulness	H_{6a} (2)	+	.24*	1.85
Brand Strength → Frequency	H_{6a} (3)	–	-.03	-.21
Brand Strength → Timing	H_{6a} (4)	–	-.14	-1.12
Brand Strength → Preannouncing Effectiveness	H_{6b}	+	.07	.62

*p < .1
**p < .05
***p < .01

All the hypotheses concerning product newness and the new product preannouncing behaviours are not supported (see Table 6.14). The only one significant

coefficient ($p < .1$) is for Hypothesis 7 (2). However, this structural relationship was contrary to the predicted direction.

TABLE 6.14
Initial Assessment of Hypothesis 7

Causal Path	Hypothesis	Expected Sign	Path Coefficient (Standardised)	t-value
Product Newness → Message Clarity	H_7 (1)	+	-.10	-1.05
Product Newness → Message Uniformity	H_7 (2)	+	-.15*	-1.57
Product Newness → Message Content	H_7 (3)	+	-.01	.12
Product Newness → Frequency	H_7 (5)	+	.04	.42
Product Newness → Timing	H_7 (6)	+	.02	.25

*p < .1
**p < .05
***p < .01

As shown in Table 6.15, all the hypotheses with respect to firm size are significant. Hypotheses 8a (5) and 8b are significant at the .01 level; Hypotheses 8a (1) and 8a (4) significant at the .05 level; Hypotheses 8a (2) and 8a (3) significant at the .1 level. Nevertheless, the signs of three estimated coefficients (in Hypotheses 8a (2), 8a(3), and 8a(5)) are the reverse of what are hypothesised.

Three of the coefficient estimates for Hypotheses 9a are significant, but, surprisingly, all of them were opposite to the predicted directions. Hypotheses 9a (4), 9a (6), and 9a (7) predict negative influences of product category strength on message content, preannouncing frequency, and timing. The initial assessment shows that these

causal links are all positive. The contrary directionality of the product category strength-related hypotheses will be further discussed in Section 7.3.2. In contrast, the relationship between product category and preannouncing effectiveness (Hypothesis 9b) is confirmed. The coefficient is positively significant ($p < .05$). Table 6.16 shows the results of this hypothesis testing.

Table 6.17 presents the initial assessment results for testing Hypotheses 10a and 10b. Hypothesis 10a (1) is supported at the .05 significance level; Hypotheses 10a (2) and 10a (3) are supported at the .01 significance level. Moreover, Hypothesis 10b is supported with a significant positive coefficient ($p < .05$).

TABLE 6.15
Initial Assessment of Hypotheses 8a and 8b

Causal Path	Hypothesis	Expected Sign	Path Coefficient (Standardised)	t-value
Firm Size → Message Clarity	H_{8a} (1)	–	-.22**	-2.15
Firm Size → Message Truthfulness	H_{8a} (2)	+	-.18*	-1.57
Firm Size → Message Content	H_{8a} (3)	–	.15*	1.54
Firm Size → Frequency	H_{8a} (4)	–	-.18**	-1.72
Firm Size → Timing	H_{8a} (5)	–	.26***	2.36
Firm Size → Preannouncing Effectiveness	H_{8b}	+	.32***	3.72

*p < .1
**p < .05
***p < .01

TABLE 6.16
Initial Assessment of Hypotheses 9a and 9b

Causal Path	Hypothesis	Expected Sign	Path Coefficient (Standardised)	t-value
Product Category Strength → Message Clarity	H_{9a} (1)	–	-.11	-.99
Product Category Strength → Message Uniformity	H_{9a} (2)	–	-.01	-.12
Product Category Strength → Message Truthfulness	H_{9a} (3)	+	-.04	-.32
Product Category Strength → Message Content	H_{9a} (4)	–	.18**	1.96
Product Category Strength → Frequency	H_{9a} (6)	–	.26**	2.27
Product Category Strength → Timing	H_{9a} (7)	–	.18*	1.60
Product Category Strength → Preannouncing Effectiveness	H_{9b}	+	.17**	1.81

*p < .1
**p < .05
***p < .01

TABLE 6.17
Initial Assessment of Hypotheses 10a and 10b

Causal Path	Hypothesis	Expected Sign	Path Coefficient (Standardised)	t-value
Market Orientation → Message Clarity	H_{10a} (1)	+	.19**	2.07
Market Orientation → Message Uniformity	H_{10a} (2)	+	.41***	4.20
Market Orientation → Message Content	H_{10a} (3)	+	.41***	4.81
Market Orientation → Frequency	H_{10a} (5)	+	.06	.64
Market Orientation → Timing	H_{10a} (6)	+	-.03	-.31
Market Orientation → Preannouncing Effectiveness	H_{10b}	+	.19**	1.93

*p < .1
**p < .05
***p < .01

Of the six hypotheses concerning network externality, only two are supported (see Table 6.18). The positive link between network externality and message content (Hypothesis 11 (4)) is supported at the .05 significance level. Hypothesis 11 (6) is also supported, indicating that network externality exerts a positive effect on preannouncing timing ($p < .01$).

TABLE 6.18
Initial Assessment of Hypothesis 11

Causal Path	Hypothesis	Expected Sign	Path Coefficient (Standardised)	t-value
Network Externality → Message Clarity	H_{11} (1)	+	-.13	-1.03
Network Externality → Message Uniformity	H_{11} (2)	+	-.04	-.27
Network Externality → Message Truthfulness	H_{11} (3)	+	-.13	-.90
Network Externality → Message Content	H_{11} (4)	+	.23**	1.95
Network Externality → Frequency	H_{11} (5)	+	-.09	-.73
Network Externality → Timing	H_{11} (6)	+	.48***	3.21

*p < .1
**p < .05
***p < .01

As shown in Table 6.19, Hypotheses 12 (4) and 12 (6) are both significant at the .1 level of significance. The estimated coefficients for these two hypotheses, however, are opposite to what are predicted. Hypothesis 12 (7) proposing a negative impact of competitive hostility on preannouncing effectiveness is supported at the .01 significance level.

TABLE 6.19
Initial Assessment of Hypothesis 12

Causal Path	Hypothesis	Expected Sign	Path Coefficient (Standardised)	t-value
Competitive Hostility → Message Clarity	H_{12} (1)	–	.05	.42
Competitive Hostility → Message Uniformity	H_{12} (2)	–	.02	.14
Competitive Hostility → Message Truthfulness	H_{12} (3)	–	-.08	-.49
Competitive Hostility → Message Content	H_{12} (4)	–	.18*	1.41
Competitive Hostility → Frequency	H_{12} (6)	–	.19*	1.42
Competitive Hostility → Timing	H_{12} (7)	–	-.40***	-2.68

*p < .1
**p < .05
***p < .01

As for Hypothesis 14, only one proposed relationship turned out to be supported. Only Hypothesis 14 (4) has a significant coefficient ($p < .1$), while the signs of all the coefficient estimates are in the expected direction. As expected, technological turbulence impose a negative impact on the content of the preannounced messages. Table 6.20 shows the results of testing Hypothesis 14.

The impacts of media emphasis and favourability on preannouncing effectiveness are not hypothesised in that they serve as control variables. Nevertheless, the two media-related constructs are expected to positively influence the effectiveness of new product preannouncement. The results show that the signs of the estimated coefficients are both

in the expected direction, while only the media favourability-preannouncing effectiveness link is significant at the .05 level (see Table 6.21).

TABLE 6.20
Initial Assessment of Hypothesis 14

Causal Path	Hypothesis	Expected Sign	Path Coefficient (Standardised)	t-value
Technological Turbulence → Message Clarity	H_{14} (1)	–	.07	.75
Technological Turbulence → Message Uniformity	H_{14} (2)	–	-.11	-1.10
Technological Turbulence → Message Truthfulness	H_{14} (3)	–	-.13	-1.20
Technological Turbulence → Message Content	H_{14} (4)	–	-.12*	-1.38
Technological Turbulence → Timing	H_{14} (5)	+	.08	.77

*p < .1
**p < .05
***p < .01

TABLE 6.21
Initial Assessment of Non-hypothesised Paths

Causal Path	Hypothesis	Expected Sign	Path Coefficient (Standardised)	t-value
Media Emphasis → Preannouncing Effectiveness	NA	+	.15	.93
Media Favourability→ Preannouncing Effectiveness	NA	+	.26**	1.69

*p < .1
**p < .05
***p < .01

6.3.5 Model Respecifications

The initial analysis confirms the operational model as a better-fitting model. Nevertheless, the values of goodness-of-fit indices indicate room for improvement. As

the relatively small PGFI value (.24) reflects the large number of parameters contained in the operational model, the first reasonable step for model improvement was to simplify the model by removing all the nonsignificant parameters of path coefficients, rather than to incorporate additional parameters into the model (Bentler 1980; Byrne 1998; MacCallum 1995; MacKenzie, Podskoff, and Ahearne 1998; Sawyer 1992). The elimination of the nonsignificant paths also increased the ratio of sample size to the number of free parameters, which helped to secure correct goodness-of-fit statistics and trustworthy tests on the significance of parameters (Bentler and Chou 1987; Hulland, Chow, and Lam 1996).

The elimination of the nonsignificant parameters was performed by fixing the nonsignificant paths to zero. The resulting model (the first revised model) has a chi-square statistic of 112.83 with 64 degrees of freedom ($p < .001$) and a PGFI value of .39 (see Table 6.22). The chi-square difference test for this revised model and the operational model is not significant, indicating that constraining the 25 parameters does not lead to loss of fit. On the other hand, the PGFI value indicates an increase of model parsimony. The other evidence of increased parsimony comes from the difference in the values of parsimony normed fit index (PNFI) between the operational and revised models. The increase of the PNFI from .24 to .38 is indicative of a substantial difference in parsimony of the two model, the value difference being greater than .09 (Hair, Anderson, Tatham, and Black 1996). It is therefore concluded that the constraints of the nonsignificant parameters results in a relatively parsimonious model without substantial loss of model fit.

The parameter of the path from product category strength to preannouncing timing, however, became nonsignificant after deleting the nonsignificant parameters. In the interest of parsimony, this parameter was removed from the first revised model (cf. MacKenzie, Podsakoff, and Ahearne 1998), which led to the second revised model with a chi-square value 113.93 ($df = 65$, $p < .001$). The other goodness-of-fit statistics of the second revised model are shown in Table 6.22. The difference in chi-square statistics between the first and second revised models indicates that further constraining the product category-preannouncing timing path to zero does not substantially lose model fit. A comparison on the PFGI and PNFI values of the two revised models shows a slight improvement in parsimony (an increase of .01 for both indices) as well.

The goodness-of-fit measures for the second revised model indicate the necessity of further model modification. Hence, the next step was to relax overidentifying restrictions of the model according to a combined evaluation of the standardised residuals and modification indices. The standardised residuals exceeding $\pm$ 2.58 ($p = .01$) were deemed significant. Modification indices above the suggested 3.84 were indicative of possible model respecification. The overall evaluation of the standardised residuals and modification indices indicates that the inadequate fit of the second revised model may result from significant relationships between message uniformity and message clarity, between message truthfulness and message uniformity, and between message truthfulness and message clarity. On theoretical grounds (Eliashberg, Robertson, and Rymon 1995; Heil and Robertson 1991), the parameters of the three paths were sequentially added into the model. Table 6.23 describes the specifications of three modified models that incorporate the three structural paths. The first modified model set free the parameter of

Table 6.22
Comparisons of the Operational Model and Two Revised Models

Model	χ^2	df	p	$\Delta\chi^2$	Δdf	p	CFI	GFI	AGFI	NFI	NNFI	PGFI	RMSEA	RMR
OM	95.80	39	< .001	-	-	-	.88	.94	.78	.84	.58	.24	.090	.063
RM1	112.83	64	< .001	17.03	25	> .1	.90	.94	.85	.81	.78	.39	.065	.069
RM2	113.93	65	< .001	1.1	1	> .1	.90	.93	.85	.81	.78	.40	.065	.069

Note: OM: The operational model; RM1: The first revised model that deletes nonsignificant parameters;
RM2: The second revised model that further deletes the path between product category strength and preannouncing timing

Table 6.23
Descriptions of the Modified Models

Model	Freed Parameter of Path Coefficient
Modified Model 1	Message Uniformity → Message Clarity
Modified Model 2	Message Uniformity → Message Clarity Message Truthfulness → Message Uniformity
Modified Model 3	Message Uniformity → Message Clarity Message Truthfulness → Message Uniformity Message Truthfulness → Message Clarity

the path from message uniformity to message clarity. This modified model contended that message uniformity helps to deliver clear messages. Compared with the second revised model, the first modified model shows a significant improvement in model fit ($\Delta\chi^2$ (1) = 20.10, $p < .001$) and roughly the same parsimony (see Table 6.24).

Based on the first modified model, the second modified model included an additional parameter for the path from message truthfulness to message uniformity. Similarly, the second modified model also demonstrates a further significant improvement in model fit. Table 6.24 shows that the difference in chi-square statistics between the first and second modified model is 16.96 with one degree of freedom ($p < .001$). With little change in model parsimony (ΔPGFI = .01 and ΔPNFI = .00), the results confirm that the second modified model is superior to the first one.

The second modified model was further improved by adding one more parameter for the path linking message truthfulness to message clarity, which resulted in the third modified model. As shown in Table 6.24, the difference in chi-square values between the third and second modified models shows a significantly improved model fit at the .01 level. The other indices also indicate that the third modified model has advantages over the second model. The parsimony of the third modified model remains at the same level

Table 6.24
Results of Model Modifications

Model	χ^2	df	p	$\Delta\chi^2$	Δdf	p	CFI	GFI	AGFI	NFI	NNFI	PGFI	RMSEA	RMR
RM2	113.93	65	< .001	-	-	-	.90	.93	.85	.81	.78	.40	.065	.069
MM1	93.83	64	< .01	20.10	1	< .001	.94	.95	.88	.84	.86	.40	.047	.060
MM2	76.87	63	.11	16.96	1	< .001	.97	.96	.90	.87	.94	.39	.033	.054
MM3	69.69	62	.23	7.18	1	< .01	.98	.96	.90	.88	.96	.39	.026	.052

Note: RM2: The second revised model; MM1: The first modified model; MM2: the second modified model; MM3: The third modified model.

as that of the second model. According to its goodness-of-fit indices, the third modified model was regarded as an acceptably well-fitting model. Hence, it was unnecessary to pursue any further model modification only for the sake of achieving even better model fit (Byrne 1998).

In the process of model modification, the parameter of the path from market orientation to message clarity was found to become nonsignificant. As such, the accepted model was reestimated and finalised by eliminating this parameter. The resulting model has a chi-square value of 69.98 with 63 degrees of freedom (p = .25), CFI = .99, GFI = .96, AGFI = .90, NFI = .88, NNFI = .97, PGFI = .40, RMSEA = .025, and RMR = .053. Accordingly, this model was adopted as the final model. The somewhat low value of the NFI may result from the tendency of the NFI to underestimate model fit in small sample (Byrne 1998). Table 6.25 shows the results of the coefficient estimates in the final model.

The final results can be expressed in terms of structural equations as shown in Table 6.26. The equations in which the endogenous constructs are influenced by exogenous constructs and the other endogenous constructs illustrate the significant relationships in the final model. Each coefficient estimate is a completely standardised value transformed from the corresponding unstandardised estimate. The squared multiple correlations measure the strength of respective structural relationships (Joreskog and Sorbom 1996). Each R^2 value represents the amount of variance explained in an endogenous construct. The somewhat low R^2 values of the equations for message truthfulness (R^2 = .04) and preannouncing frequency (R^2 = .08) indicate that the

exogenous constructs in these two equations cannot adequately account for these two endogenous constructs.

TABLE 6.25
Results of the Final Model

Causal Path	Hypothesis	Expected Sign	Path Coefficient (Standardised)	t-value
Message Uniformity → Preannouncing Effectiveness	H_2	+	.27***	2.88
Frequency → Preannouncing Effectiveness	H_4	+	.19***	2.49
Timing → Preannouncing Effectiveness	H_5	+	.11*	1.52
Brand Strength → Message Clarity	H_{6a} (1)	+	.33***	3.91
Brand Strength → Message Truthfulness	H_{6a} (2)	+	.14*	1.30
Product Newness → Message Uniformity	H_7 (2)	+	-.16**	-1.84
Firm Size → Message Clarity	H_{8a} (1)	–	-.17**	-2.13
Firm Size → Message Truthfulness	H_{8a} (2)	+	-.18**	-1.82
Firm Size → Message Content	H_{8a} (3)	–	.13*	1.42
Firm Size → Frequency	H_{8a} (4)	–	-.18**	-1.95
Firm Size → Timing	H_{8a} (5)	–	.31***	3.21
Firm Size → Preannouncing Effectiveness	H_{8b}	+	.36***	4.38
Product Category Strength → Message Content	H_{9a} (4)	–	.19**	2.04
Product Category Strength → Frequency	H_{9a} (6)	–	.27**	2.89
Product Category Strength → Preannouncing Effectiveness	H_{9b}	+	.20***	2.36
Market Orientation → Message Uniformity	H_{10a} (2)	+	.34***	3.76
Market Orientation → Message Content	H_{10a} (3)	+	.39***	4.56
Market Orientation → Preannouncing Effectiveness	H_{10b}	+	.17**	1.96

Network Externality → Message Content	H_{11} (4)	+	.23**	1.97
Network Externality → Timing	H_{11} (6)	+	.51***	3.97
Competitive Hostility → Message Content	H_{12} (4)	–	.18*	1.42
Competitive Hostility → Frequency	H_{12} (6)	–	.19*	1.46
Competitive Hostility → Timing	H_{12} (7)	–	-.40***	-3.75
Technological Turbulence → Message Content	H_{14} (4)	–	-.12*	-1.34
Media Favourability→ Preannouncing Effectiveness	Controlled Effect	+	.39***	5.08
Message Uniformity → Message Clarity	Added	+	.35***	3.59
Message Truthfulness → Message Uniformity	Added	+	.36***	3.42
Message Truthfulness → Message Clarity	Added	+	.28***	2.71

*p < .1
**p < .05
***p < .01
Note: Chi-Square = 69.98 (d.f. = 63, p = .25); CFI = .99; GFI = .96; AGFI = .90; NFI = .88; NNFI = .97; PGFI = .40; RMSEA = .025; RMR = .053.

The effectiveness of new product preannouncement is positively influenced by message uniformity, preannouncing frequency, preannouncing timing, firm size, product category strength, market orientation, and media favourability. Message clarity is accounted for by message uniformity, message truthfulness, brand strength, and firm size. Message uniformity can be explained by message truthfulness, product newness, and market orientation. Brand strength and firm size are two causes of message truthfulness. The constructs influencing message content comprise: firm size, product category strength, market orientation, network externality, competitive hostility, and technological

turbulence. The frequency of disseminating new product preannouncements is affected by firm size, product category strength, and competitive hostility. As for the timing of new product preannouncement, it is under the influence of firm size, network externality, and competitive hostility. To demonstrate a holistic view of the final model, a path diagram encompassing all the significant paths in the model is illustrated in Figure 6.6.

Table 6.26
Structural Equations: Final Results

Endogenous Constructs	**Endogenous Constructs**						
	PE	MC	MU	MT	CO	PF	PT
Preannouncing Effectiveness							
Message Clarity							
Message Uniformity	.27***	.35***					
Message Truthfulness		.28***	.36***				
Message Content							
Preannouncing Frequency	.19***						
Preannouncing Timing	.11*						
Exogenous Constructs							
Brand Strength		.33***		.14*			
Product Newness			-.16**				
Firm Size	.36***	-.17**		-.18*	.13*	-.18**	.31***
Product Category Strength	.20***				.27**	.27**	
Market Orientation	.17**		.34***		.39***		
Network Externality					.23**		.51***
Competitive Hostility					.18*	.16*	-.52***
Technological Turbulence					-.12*		
Media Emphasis							
Media Favourability	.39***						
Squared Multiple Correlation (R^2)	.57	.49	.31	.04	.34	.08	.28

*p < .1
**p < .05
***p < .01

Figure 6.6
Path Diagram of the Final Model

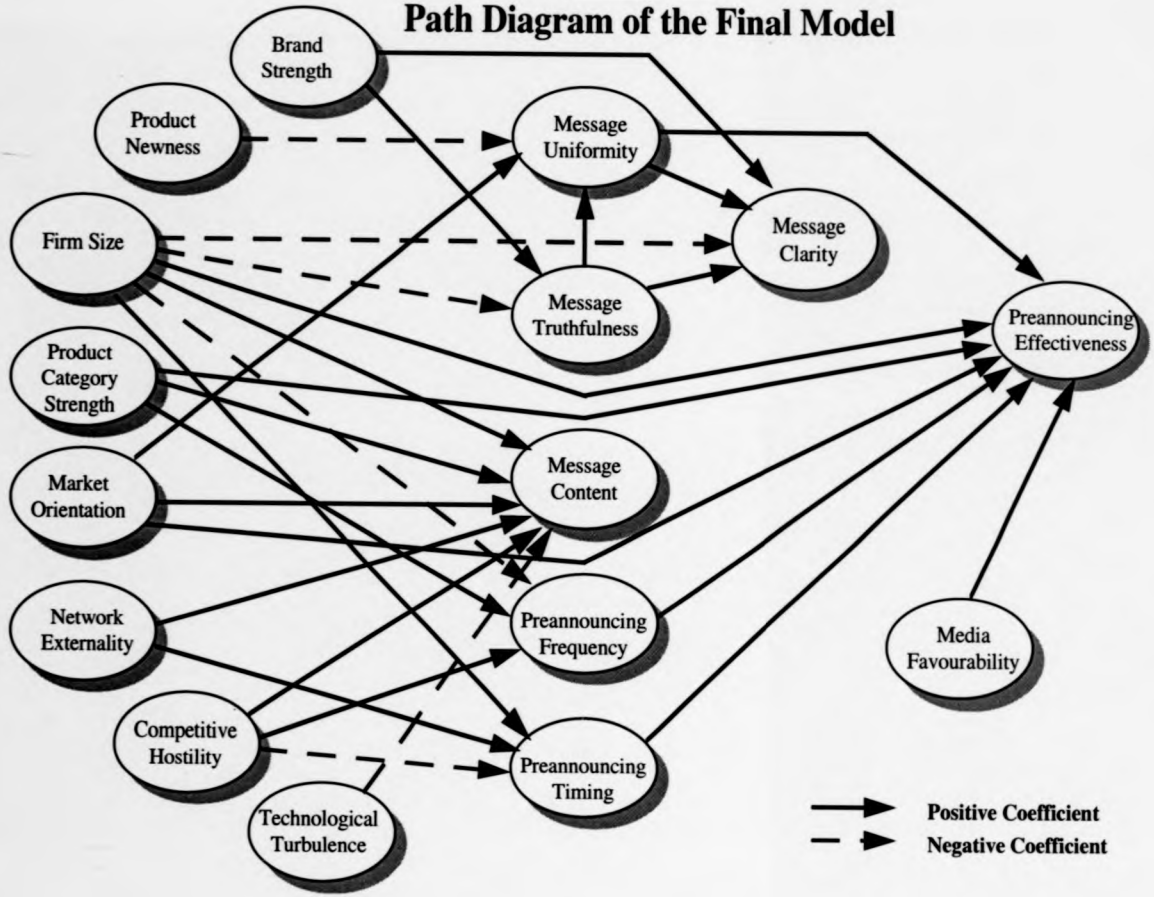


Table 6.27 presents the indirect and total effects of each determinants on preannouncing effectiveness. The total effects are the sum of the direct effects and all indirect effects (Joreskog and Sorbom 1996). As shown in this table, message truthfulness indirectly imposes a positive impact on the effectiveness of new product preannouncement through the mediation of message uniformity. The total effect of product newness on preannouncing effectiveness is negative. This is a multiplicative outcome of two coefficients in the mediating relationship where product newness has a negative influence on message uniformity, which, in turn, has a positive influence on preannouncing effectiveness. Network externality positively influences preannouncing effectiveness through its direct, positive effect on preannouncing timing, which in turn exerts a positive impact on the effectiveness.

6.4 Summary

This chapter discussed the data analysis with respect to descriptive findings and hypothesis testing. The results portray some important characteristics of new product preannouncing behaviours, including target audiences, communication channels, preannouncing objectives, and message cues. A series of structural equation modelling leads to a final model that links the situational factors, strategic behaviours, and effectiveness of new product preannouncement. The findings shown in the final model will be further discussed at length in Chapter 7.

Table 6.27
Indirect and Total Effects on Effectiveness of New Product Preannouncement

Causal Path From		Path Coefficient (Standardised)	t-value
Brand Strength			
	Indirect Effect	.01	1.13
	Total Effect	.01	1.13
Product Newness			
	Indirect Effect	-.04*	-1.56
	Total Effect	-.04*	-1.56
Firm Size			
	Indirect Effect	-.02	-.44
	Total Effect	.34***	4.10
Product Category Strength			
	Indirect Effect	.05**	1.92
	Total Effect	.25***	3.02
Market Orientation			
	Indirect Effect	.09**	2.31
	Total Effect	.27***	3.24
Network Externality			
	Indirect Effect	.06*	1.42
	Total Effect	.06*	1.42
Competitive Hostility			
	Indirect Effect	-.03	-.61
	Total Effect	-.03	-.61
Technological Turbulence			
	Indirect Effect	–	–
	Total Effect	–	–
Media Emphasis			
	Indirect Effect	–	–
	Total Effect	–	–
Media Favourability			
	Indirect Effect	–	–
	Total Effect	.39***	5.08
Message Clarity			
	Indirect Effect	–	–
	Total Effect	–	–
Message Uniformity			
	Indirect Effect	–	–

	Total Effect	.27***	2.88
Message Truthfulness			
	Indirect Effect	.10**	2.24
	Total Effect	.10**	2.24
Message Content			
	Indirect Effect	–	–
	Total Effect	–	–
Preannouncing Frequency			
	Indirect Effect	–	–
	Total Effect	.19***	2.49
Preannouncing Timing			
	Indirect Effect	–	–
	Total Effect	.11*	1.52

*p < .1
**p < .05
***p < .01

Chapter 7

Discussion

7.1 Introduction

The purpose of this research is to (1) investigate various aspects of new product preannouncing behaviour, (2) examine the influences of situational factors on the firms' adoption of different new product preannouncing behaviours, and (3) measure the effectiveness of new product preannouncement and link it to the antecedents. The empirical findings presented in Chapter 6 provide valuable insights into these three inter-related aspects of new product preannouncing phenomenon. Table 7.1 summarises the results of hypothesis testing. The hypotheses related to market turbulence and visibility, e.g., Hypothesis 3 and Hypothesis 13, are not included due to the elimination of these two constructs.

This chapter discusses the research results presented in Chapter 6. The discussions begin with a thorough analysis of the relationships between new product preannouncing behaviours and brand/product, firm, and market characteristics. Next, the relationships between preannouncing effectiveness and the antecedents are examined. In the end, three added relationships among message-related constructs are discussed in detail. The discussions are delivered in a way to recapitulate the rationale for the supported hypotheses and explore the explanations for the unsupported hypotheses.

TABLE 7.1
Summarised Results of Hypothesis Testing

Causal Path	Hypothesis	Expected Sign	Coefficient
Message Clarity → Preannouncing Effectiveness	H_1	+	NS
Message Uniformity → Preannouncing Effectiveness	H_2	+	.27***
Frequency → Preannouncing Effectiveness	H_4	+	.19**
Timing → Preannouncing Effectiveness	H_5	+	.11*
Brand Strength → Message Clarity	H_{6a} (1)	+	.33***
Brand Strength → Message Truthfulness	H_{6a} (2)	+	.14*
Brand Strength → Frequency	H_{6a} (3)	–	NS
Brand Strength → Timing	H_{6a} (4)	–	NS
Brand Strength → Preannouncing Effectiveness	H_{6b}	+	NS
Product Newness → Message Clarity	H_7 (1)	+	NS
Product Newness → Message Uniformity	H_7 (2)	+	-.16*
Product Newness → Message Content	H_7 (3)	+	NS
Product Newness → Frequency	H_7 (5)	+	NS
Product Newness → Timing	H_7 (6)	+	NS
Firm Size → Message Clarity	H_{8a} (1)	–	-.17**
Firm Size → Message Truthfulness	H_{8a} (2)	+	-.18*
Firm Size → Message Content	H_{8a} (3)	–	.13*
Firm Size → Frequency	H_{8a} (4)	–	-.18**
Firm Size → Timing	H_{8a} (5)	–	.31***
Firm Size → Preannouncing Effectiveness	H_{8b}	+	.36***
Product Category Strength → Message Clarity	H_{9a} (1)	–	NS
Product Category Strength → Message Uniformity	H_{9a} (2)	–	NS
Product Category Strength → Message Truthfulness	H_{9a} (3)	+	NS
Product Category Strength → Message Content	H_{9a} (4)	–	.27**
Product Category Strength → Frequency	H_{9a} (6)	–	.27**
Product Category Strength → Timing	H_{9a} (7)	–	NS
Product Category Strength → Effectiveness	H_{9b}	+	.20**
Market Orientation → Message Clarity	H_{10a} (1)	+	NS
Market Orientation → Message Uniformity	H_{10a} (2)	+	.34***
Market Orientation → Message Content	H_{10a} (3)	+	.39***
Market Orientation → Frequency	H_{10a} (5)	+	NS
Market Orientation → Timing	H_{10a} (6)	+	NS
Market Orientation → Preannouncing Effectiveness	H_{10b}	+	.17**
Network Externality → Message Clarity	H_{11} (1)	+	NS
Network Externality → Message Uniformity	H_{11} (2)	+	NS
Network Externality → Message Truthfulness	H_{11} (3)	+	NS
Network Externality → Message Content	H_{11} (4)	+	.23**

Network Externality → Frequency	H_{11} (5)	+	NS
Network Externality → Timing	H_{11} (6)	+	.51***
Competitive Hostility → Message Clarity	H_{12} (1)	–	NS
Competitive Hostility → Message Uniformity	H_{12} (2)	–	NS
Competitive Hostility → Message Truthfulness	H_{12} (3)	–	NS
Competitive Hostility → Message Content	H_{12} (4)	–	.18*
Competitive Hostility → Frequency	H_{12} (6)	–	.16*
Competitive Hostility → Timing	H_{12} (7)	–	-.52***
Technological Turbulence → Message Clarity	H_{14} (1)	–	NS
Technological Turbulence → Message Uniformity	H_{14} (2)	–	NS
Technological Turbulence → Message Truthfulness	H_{14} (3)	–	NS
Technological Turbulence → Message Content	H_{14} (4)	–	-.12*
Technological Turbulence → Timing	H_{14} (5)	+	NS
Media Emphasis → Preannouncing Effectiveness	NA	+	NS
Media Favourability→ Preannouncing Effectiveness	NA	+	.39***
Message Uniformity → Message Clarity	Added	+	.35***
Message Truthfulness → Message Uniformity	Added	+	.36***
Message Truthfulness → Message Clarity	Added	+	.28***

*p < .1
**p < .05
***p < .01
NA: No hypothesis provided
NS: Nonsignificant

7.2 Brand/Product Characteristics and New Product Preannouncing Behaviours

7.2.1 Brand Strength and New Product Preannouncing Behaviours

The empirical results show that brand strength increases both message clarity and message truthfulness. This confirms the proposed hypothesis that a new product associated with a strong brand has to be preannounced in a manner to protect or enhance the image of the parent brand. As such, a new product under the umbrella of a strong brand is more inclined to be preannounced with clear messages. In so doing, the parent brand image will not become diluted, obscured, or damaged. Likewise, the

preannounced messages sent for a strong branded product tend to reveal the true situations with respect to the product, because any deception, once perceived, may hurt the credibility of the parent brand.

More and more firms have been affiliating their brands with diverse products as a way to leverage the reputation of the brands (Dacin and Smith 1994). The underlying rationale is that stronger brands may provide greater leverage for new products (Aaker 1990; Aaker and Keller 1990). A brand name helps customers understand its associated new products. It functions as an encoding and retrieval cue for brand-related information, as an indication of intangible product properties, or as a heuristic cue for evaluation and choice decisions (Park, Jun, and Shocker 1996). A stronger brand implies greater customer predisposition toward the products attached to it (Smith and Park 1992). Despite the widespread use of an existing brand in support of a new product, the act of capitalising on the brand's image or equity is not without inherent risks that ultimately may weaken it (Dacin and Smith 1994). The preannouncements of a new product, as a means of marketing communications, can affect the inference customers develop about its parent brand, which in turn may influence the image or position of the brand (Park, Jaworski, and MacInnis 1986). Clear new product preannouncements enhance customers' judgments of the perceived fit between the new product and existing products, both associated with the same brand, so the risk of obfuscating the brand concept can be minimised. On the other hand, preannouncing the product in a honest way may avoid deteriorating well-

established reputation of the brand lest deceptive messages may harm other products affiliated with the brand.

The relationships of brand strength with preannouncing frequency and timing, however, are not significant. The findings indicate that whether new products are strong branded does not affect how early and frequently new product preannouncements are conducted. In other words, the timing and frequency involved in preanouncing new products do not depend on the strength of their parent brands. Preannouncing firms do not lessen their communication efforts in preannouncing new products simply because the products are attached to strong brands.

7.2.2 Product Newness and New Product Preannouncing Behaviours

Surprisingly, product newness does not have significant effects on message clarity, message content, preannouncing frequency and preannouncing timing. One possible explanation is that the risks inherent in preannouncing more innovative products, such as product line cannibalisation and failure in delivery, may counteract the motives for educating the customer and establishing conducive launch environments. For instance, the preannouncement of a new product with major changes accelerates obsolescence of the same firm's existing products (Purohit 1992), which may result in damaging cannibalisation. The concern for potential cannibalisation forces the firm to delay the preannouncement (Lilly and Walters 1997). The negative effect of cannibalisation risk on preannouncing timing, to some extent, cancels the positive effects of preannouncing motives.

The relationship between product newness and message uniformity is negative, which is counter to the hypothesised relationship. This means that the more radical the new product, the more varied are the messages communicated in the firm's preannouncements. The inverse relationship observed may be attributed to the greater marketing, technology, and competitor uncertainty entailed with the development and marketing of radical innovations (Atuahene-Gima 1995). The uncertainty in a radical innovation project mainly results from the lack of standardisation, unavailability of information, and instability or change in the knowledge base. Such uncertainty sequentially declines as the project progresses from early to final stages (Gales and Mansour-Cole 1995). Greater product newness drives firms to preannounce their products in order to heighten customer learning, while the project uncertainty may lead the firms to vary the preannounced content in the sense that, when conducting earlier preannouncements, they are incapable of accurately predicting the amount of R&D required, product features, development duration, final outcomes, and innovation values. The change in the levels of project uncertainty between early and late product development stages may lead the firm to relay inconsistent messages across different preannouncements.

7.3 Firm Characteristics and New Product Preannouncing Behaviours

7.3.1 Firm Size and New Product Preannouncing Behaviours

The results indicate that the relationships between firm size and new product preannouncing behaviours are omnifarious but insightful. Consistent with the

proposed hypothesis, larger firms tend to preannounce their new products less frequently and with more ambiguous messages. However, larger firms are more inclined to conduct earlier preannouncements with more message content and in an untruthful way, which contradicts the original expectations. These findings show that large firms' concerns about antitrust allegation (Eliashberg and Robertson 1988) may not fully account for their new product preannouncing behaviours.

One possible explanation for the positive relationships between firm size and preannouncing timing and message content comes from the fact that larger companies are more obliged to fulfil the expectations of multiple stakeholders and tend to receive much public scrutiny (Fombrun and Shanley 1990). Frequently, larger firms have to deal with more external collaborators such as suppliers, distributors, or producers of complementary products. The firms conspicuously expose themselves to stockholders, a force that invariably influences their strategic behaviour (Firth and Narayanan 1996). All the stakeholders, to some extent, need to seek information about the firms' future market actions. By revealing more new product-related message cues, the firms provide these organisations with more information to use or follow. They can enhance their access to capital markets, attract investors, and/or raise their stock prices. Likewise, larger firms preannounce their new products earlier to make the organisations aware of upcoming new products, giving their strategic allies more lead time to align with the firms' future market entry. Earlier preannouncements also serve to impress the financial society.

Larger companies tend to preannounce their new product with scruples, for fear of being charged with predatory market moves (Heil and Langvardt 1994). They desire to blur the preannounced messages in an attempt to make the message receivers, especially the competitors, hard to decipher the preannouncements. Accordingly, the receiving firms, confounded by the unclear and noisy messages, need considerable time and effort to reach an attribution as to the real intent or motive behind the preannouncements, which may delay their competitive reactions or initiatives (Heil and Robertson 1991). In a similar vein, larger firms are also more likely to restrain themselves from preannouncing their new products very frequently to avoid continuously reminding the competitors of how aggressive they are.

Despite the superior reputation and image of larger firms (Gatignon, Weitz, and Bansal 1990), they are more likely to disseminate untruthful new product-related messages in their preannouncements. The firms are intended to conduct deceptive market signalling with a view to obtaining competitive advantage or, perhaps, only to hide their aggressiveness. In general, the deceptive signalling behaviour may include nondisclosure, secrecy, lying, and manipulation of the information (Metcalfe 1990). The firms tend to manipulate the preannounced messages in a manner to misrepresent the reality. As such, competitors may be led to act in ways the firms anticipate or their intelligence systems may become confused. The proclivity of larger firms for preannouncing untruthful messages may result from the fact that they are more likely to achieve competitive objectives by deceiving their competitors simply because their market signals are more salient and, most often, seriously considered. Nevertheless,

disseminating "bluff" may risk the firms' long-term reputation or future credibility (Heil and Robertson 1991).

7.3.2 Product Category Strength and New Product Preannouncing Behaviours

Product category strength does not significantly influence message clarity, message uniformity, message truthfulness, and preannouncing timing. Moreover, the relationships between product category strength (reflecting a firm's market dominance) and message content and preannouncing frequency are contradictory to the hypotheses contending that market dominant firms are more likely to restrict the amount of message content and the frequency of preannouncement because they are afraid of cannibalising their existing products. However, the results show that preannouncing firms holding strong positions in their product categories tend to preannounce new products more frequently and use more message cues, without reducing the clarity and uniformity of messages and postponing the preannouncement. It appears that, when executing preannouncements, the leading firms are not concerned about cannibalising their existing products in the market and, instead, they preannounce the products in a proactive manner. On the other hand, market leaders do not necessarily conduct preannouncements that express the reality of new products. To some extent, this unexpected finding confirms our observation that some leading firms in certain industries, e.g., Microsoft, also engage in sending untruthful competitive market signals. In fact, most of the firms in the software industry have

tendency to bluff, no matter what market positions they possess (Eliashberg, Robertson, and Rymon 1995).

There are two potential reasons for this discrepancy. One is that the firms in strong market positions preannounce their new products with their willingness to cannibalise the existing products (Chandy and Tellis 1998). Market leading firms may deliberately execute new product preannouncements to avoid potential cannibalisation, but they are quite willing to face any consequence of damaging current product sales. The other reason that the leading firms preannounce more frequently and use more message cues may result from their motive to seek competitive norms of conduct (Eliashberg and Robertson, 1988; Heil and Robertson, 1991), which overwhelms the fear of cannibalisation.

One of the most serious risks of preannouncing a new product is the potential cannibalisation of current products' sales (Green and Krieger 1987), which happens when the trade or consumers delay their purchases of the existing product line in anticipation of the preannounced product (Heil and Robertson 1991). Such a risk becomes intensified as the market share of a preannouncing firm increases. The risk deters the occurrence of new product preannouncement (Eliashberg and Robertson 1988). Undesirable as it may be, cannibalisation may be tolerable or, even, intentional under certain circumstances. A firm may be willing to cannibalise its existing product line if the new product is intended to raise the market value of the firm, grow management from within, change the product line, increase total profit or net cash flow, or achieve strategic marketing or competitive objectives (Traylor

1986). From the perspective of new product management, cannibalisation may be viewed as a necessary evil that, if well-planned, can promote radical product innovation and establish effective and competitive product portfolio management, leading to the long-term success of the firm (Chandy and Tellis 1998; Kerin, Harvey, and Rothe 1978). Market leaders, given their natural reluctance to cannibalise, may resort to organisational forces to minimise the deteriorating effects caused by product line cannibalisation. An integration of the findings of this research with Eliashberg and Robertson's (1988) draws the conclusion that product line cannibalisation is a serious concern when leading firms decide whether to preannounce or not, but the firms become willing to cannibalise their existing product lines once they have decided to conduct preannouncements. Their willingness to cannibalise results in more proactive preannouncing behaviours.

The value of preannouncing new products in achieving competitive norms of conduct heightens as the preannouncer's level of market dominance increases (Heil and Robertson 1991). For instance, a leading firm may set standardisation of specifications and prevent competitive misconduct through the preannouncements. Dominant firms use new product preannouncements to signal their future market actions for other firms to follow or imitate (Gatignon 1984). The motive to seek competitive advantages may drive dominant firms to involve proactive preannouncing activities since "proactiveness" represents an important trait for maintaining market leadership (Lumpkin and Dess 1996).

7.3.3 Market Orientation and New Product Preannouncing Behaviours

As expected, market-orientated firms are more likely to disseminate uniform messages with more cues in their new product preannouncements. Nevertheless, the level of market orientation does not have significant influences on message clarity, preannouncing frequency, and preannouncing timing. The results indicate that market oriented firms tend to focus their efforts on the message aspect of preannouncement rather than on the communication channel and preannouncing timing.

Firms with greater market orientation often actively engage in collecting market intelligence for the purpose of understanding customer and competitive behaviours (Gatignon and Xuereb 1997). New product preannouncement serves as a means of collecting information from the market. The market information may be communicated within organisations to coordinate different functional activities during the process of new product development (Craig and Hart 1992). Accordingly, market orientated firms tend to implement their preannouncements with uniform and sufficient messages to stimulate the target audiences, particularly customers, to react to the preannouncements. Furthermore, the nonsignificant link between market orientation and message clarity may result from the fact that, occasionally, market-orientated firms may resort to vague or noisy preannouncements to encourage competitors to reveal possible future reactions (Heil and Robertson 1991).

7.4 Market Characteristics and New Product Preannouncing Behaviours

7.4.1 Network Externality and New Product Preannouncing Behaviours

High network externality increases the likelihood of early preannouncement with more abundant message cues. However, an increase of network externality does not lead to frequent exposure and clear, uniform and truthful preannounced messages. The findings suggest that preannouncing timing and message content are major strategic options preannouncing firms maneuver to cope with barriers to product introduction that are derived from significant network externality.

In the context of high network externalities, a firm can rely on new product preannouncements to credibly communicate information about the demand potential for its new product. The use of preannouncements may raise customers' and industry watchers' expectations of installed base for the product, which is strategically important to the success of the product launch (Padmanabhan, Rajiv, and Srinivasan 1997). It may also encourage the support of other organisations, such as competing companies and manufacturers of complementary goods, for the new technology associated with the product (Wade 1995). In short, firms in a market characterised by greater network externalities often involve preannouncing new product-related messages to a variety of audiences. Earlier preannouncements with more cues help the target audiences understand better the benefits as well as newness of the preannounced products. Such preannouncements are intended to create a conducive introduction environment that may overcome excessive inertia, i.e., a socially

excessive reluctance to switch to a superior new product given the presence of network externalities (Padmanabhan, Rajiv, and Srinivasan 1997).

7.4.2 Competitive Hostility and New Product Preannouncing Behaviours

As hypothesised, greater competitive hostility accounts for later new product preannouncement. This result indicates that the concern for competitive cueing, i.e., revealing intentions to competitors (Eliashberg and Robertson 1988; Heil and Robertson 1991), dissuades a firm from preannouncing its new products earlier. It is, however, surprising to find that the firm in a highly competitive market is more inclined to preannounce the products more frequently and with higher message content. Furthermore, high competitive hostility does not lead firms to convey unclear, inconsistent, and untruthful messages. A further explanation of the seemingly conflicting findings may offer a better understanding of competitive market signalling behaviour involved in new product preannouncement.

Despite the descriptive results showing that preannouncing firms seldom regard their competitors as the major target audience, the firms are indeed wary of the retaliation from their rivals when conducting new product preannouncements. For fear of the potential for damaging competitive reactions (Lilly and Walters 1997), firms in a hostile market take measures to avoid releasing the new product-related messages too early. Nevertheless, once the firms start preannouncing, they become more aggressive in conveying market signals to survive fierce competitions or bulldoze their competitors (Chen and Miller 1994). As such, preannouncing firms

will not intend to disseminate ambiguous, inconsistent, or deceptive market signals to hide their future market moves, when facing strict competitions.

Heil and Robertson (1991) indicate that cooperative signalling behaviour is unlikely in highly competitive environments, which are characterised by unstable or changing rules of competition (Slater and Narver 1994). Expectedly, increasing competitive hostility within the market may provoke competitive aggressiveness, referred to as "a firm's propensity to directly and intensively challenge its competitors to achieve entry or improve position" (Lumpkin and Dess 1996). In the preannouncing context, the firms reflect their competitive aggressiveness by engaging in frequently signalling abundant messages to the marketplace, carrying out a threat to their competitors.

7.4.3 Technological Turbulence and New Product Preannouncing Behaviours

In a market characterised by greater technology turbulence, all the firms are driven to indulge in the pursuit of technological advancement. Technological turbulence increases the uncertainty about forthcoming technology (Ali 1994) and potential imitation of competitors on innovations (Porter 1980). A risk of failure in realising the preannounced products heightens as technological uncertainty rises (Brockhoff and Rao 1993). Technological uncertainty may also aggravate the firms' difficulty in erecting barriers to entry. Therefore, the firms in a technologically turbulent environment are less likely to fully unveil the messages concerned with their new products prior to product launch. Rather than lessening message clarity,

uniformity, or truthfulness, the firms limit the preannounced messages, especially those about product features and specifications, to minimise the potential costs associated with the rapid change of technology in the market.

7.5 Effectiveness of New Product Preannouncement and the Antecedents

7.5.1 New Product Preannouncing Behaviours and the Effectiveness

Among various attributes of the messages in new product preannouncement, message uniformity is found to have a positive impact on preannouncing effectiveness. This implies that consistency among different preannouncements is one of the most important properties in new product preannouncing behaviour for the achievement of communication effectiveness. One reason for the importance of message uniformity is that the target audiences tend to cross-validate the meanings of multiple preannouncements disseminated by a preannouncing firm during a given period of time before they can draw any conclusions from the messages (Heil and Robertson 1991). Consistent messages increase the chance of accurate interpretation of the preannouncements.

Message clarity does not significantly influence effectiveness of new product preannouncement. A possible explanation for this unexpected finding is that preannouncing firms convey clear preannounced messages which may provide competitors with precise clues about their future product introduction. With such information, the competitors can efficiently and effectively attack the product launch.

The firms suffer from the competitive strike and, therefore, depreciate their evaluation of overall preannouncing performance.

The positive link between preannouncing frequency and effectiveness confirms the argument that an increase of exposure can enhance communication effects (see Rossiter and Percy 1987). Frequently preannouncing new products raises the opportunity for the target audiences to receive the preannounced messages, which represents the first step of information processing. Likewise, earlier preannouncing means lengthening preannouncing duration, which not only increases the chance that target audiences will notice the preannouncements, but also give them more time to process the messages. In this sense, the positive relationship between preannouncing timing and effectiveness implies that earlier new product preannouncements may enhance the likelihood that the message receivers respond to the preannouncements in a way that the preannouncers have anticipated or hoped for.

7.5.2 Situational Factors and the Effectiveness

Consistent with the hypotheses, all three firm characteristics exert positive influences on the effectiveness of new product preannouncement. The direct, positive effect of firm size on effectiveness may derive from the firms' greater resources and favourable reputation and image with customers (Gatignon, Weitz, ad Bansal 1990). Product category strength leads to the achievement of communication effects in that any market signal sent by leading firms may tend to attract more audience attention (Eliashberg, Robertson, and Rymon 1995). In a similar vein, market-orientation, as expected, directly enhances preannouncing effectiveness since firms with a stronger

market orientation possess superior managerial expertise in planning and implementing prelaunch marketing communications (cf. Jaworski and Kohli 1993; Atuhene-Gima 1995).

There is no direct impact of brand strength on effectiveness of new product preannouncement. It is possible that the number of brand extensions affiliated with a parent brand is a variable moderating the relationship between brand strength and preannouncing effectiveness. Advantages of a brand may diminish as the number of extensions associated with it increases (Aaker 1990). In the preannouncing context, customers and other stakeholders will not pay special attention to or feel excited about a forthcoming new product as the number of products that have already associated with a brand increases. Thus, the positive link of brand strength with preannouncing effectiveness may be weakened because of too many products affiliated to the parent brand.

7.5.3 Media Favourability and the Effectiveness

Of the two control variables, media favourability has a positive influence on the effectiveness of new product preannouncement. The result confirms the concept of marketing hype (Wind and Mahajan 1987) that advocates the media to be one of the important stakeholders for the success of new product introduction. Favourable media coverage and commentaries are critical in the sense that the media generate higher public credibility than advertising and firm sponsored communications (Rabino and Moore 1989). As such, media favourability is a key to enhancing the

possibility that a firm's preannounced messages interest, convince, or influence the audiences.

7.6 Message Clarity, Message Uniformity, and Message Truthfulness

Three paths linking the clarity, uniformity, and truthfulness of messages were added in the final model. The empirical results demonstrate that message truthfulness positively influences both message uniformity and message clarity, and that message uniformity enhances message clarity as well. The effects of message truthfulness mean that when a firm desires to communicate the messages reflecting real new product-related situations, it tends to deliver the preannouncements in an explicit and uniform manner. In contrast, the preannounced messages are more likely to be vague and inconsistent if the preannouncements are, to some extent, untruthful. By blurring and dissimilating the messages, the firm increases message receivers' difficulty in information processing. In so doing, the firm, if caught bluffing, can have greater flexibility in explaining and protecting its reputation (cf. Eliashberg, Robertson, and Rymon 1995; Heil and Robertson 1991).

The positive relationship between message uniformity and message clarity indicates that the degree of similarity, or correlation, across different preannouncements affects the extent to which the preannounced messages can be expressed clearly. This means that a preannouncing firm is more inclined to convey precise messages if there exists consistency among the preannouncements. On the contrary, when various new product preannouncements are dissimilar or

contradictory, the firm tends to obfuscate the messages with the intention of deliberately hiding or shading the differences existing across different preannouncements.

7.7 Summary

This chapter thoroughly discussed the empirical results of this research found in Chapter 6. It recapitulated the underlying rationale for the supported hypothesised relationships. In addition, the chapter delved into possible alternative explanations for the unsupported relationships. Based on the discussion, Chapter 8 will further explore the implications of this research for theory and practice. Future research directions will accordingly be suggested.

Chapter 8

Conclusion

8.1 Introduction

This research was designed to explore two related research questions: (1) What situational factors influence the firm's adoption of different new product preannouncing behaviours? (2) How can the performance of various preannouncements be measured and linked to the antecedents? These two questions are important from both theoretical and managerial perspectives in that the answers provide the basis of a normative model for guiding the management of new product preannouncement. The findings of the research offer some extensive and insightful answers for the research questions.

To conclude this research, the remaining sections of this chapter are organised as follows. First, a summary of the research findings is provided in Section 8.2. Next, Section 8.3 discusses the implications of the research for theory. Section 8.4, on the other hand, discusses the practical implications of the research. Section 8.5 addresses the limitations of the current research. Subsequently, Section 8.6 suggests several directions for future research. The final section (8.7) concludes this thesis.

8.2 Summary of Key Research Findings

The findings of this research confirm the proposed model stipulating that situational factors, strategic behaviours and effectiveness of new product preannouncement are interconnected. It is shown that characteristics of

brand/product, firm, and market affect new product preannouncing behaviours, which, in turn, influence effectiveness of new product preannouncement. A firm's characteristics directly influence preannouncing effectiveness as well. The test of the model not only gives empirical evidence to show why and how firms display different preannouncing behaviours, but also sheds some light on measuring and improving preannouncing performance.

A firm is more likely to preannounce a new product with clear and truthful messages if the product is affiliated with a strong brand. However, if the new product is a radical innovation, the firm would tend to convey less uniform messages, that is, more diversity in the message communications. Large firms are more inclined to conduct early new product preannouncements, carrying more message cues in ambiguous and untruthful forms. In addition, the preannouncements sent by large firms are conveyed less frequently. Contrarily, market leading firms tend to preannounce new products more frequently and use more message cues. As for firms with stronger market orientation, they are more likely to deliver uniform messages with sufficient cues in their new product preannouncements.

Firms in the context of high network externalities are more inclined to conduct early preannouncement with abundant message content. When facing hostile competition, firms tend to take measures to avoid early preannouncement. Nevertheless, once the firms start preannouncing, they become aggressive in the sense that they engage in more frequent preannouncements loaded with more message cues.

If the firms are in technologically turbulent markets, they are more likely to reduce the amount of messages in their preannouncements.

The communication of uniform messages leads to higher effectiveness of new product preannouncement. The effectiveness can also be enhanced by ways of frequent preannouncing. Another way to increase the effectiveness is to conduct an early new product preannouncement. Likewise, the characteristics of firm are found to have direct impacts on preannouncing effectiveness as well. In short, large firms are more likely to enjoy higher effectiveness of new product preannouncement. Firms holding strong market positions also have a greater likelihood of attaining higher preannouncing effectiveness, ceteris paribus. In a similar vein, market-oriented firms tends to achieve more effective new product preannouncements. One more important factor that enhances the achievement of preannouncing effectiveness is media favourability. The more favourably the media cover a firm's new product preannouncement, the more likely the preannouncements will be effective.

8.3 Theoretical Implications

The nature of this research is exploratory in the sense that it represents an initial effort to study the inter-relationships among the situational factors, strategic behaviours, and effectiveness of new product preannouncement. The research is intended to bridge the current gap in theory on new product preannouncement. It advances our understanding of new product preannouncing phenomenon by proposing and testing a comprehensive model that integrates the antecedents, behaviours, and

consequences of new product preannouncement (cf. Eliashberg and Robertson 1988; Lilly and Walters 1997). In this model, new product preannouncement is regarded as the transmission of messages and analysed from the viewpoint of the message sender. The model emphasises a holistic view of managing new product preannouncement. It implies that a comprehensive decision-making process involved in new product preannouncements requires evaluating situational factors, identifying multiple target audiences and objectives specific to the audiences, formulating strategies regarding messages, communication channels, and timing, and then assessing the performance of preannouncement.

The research findings support the contention that new product preannouncement can play an important role in the planning process and prelaunch activities for new product introduction (Rabino and Moore 1989). The empirical results show that new product preannouncements are planned and conducted in a way to attain certain audience-specific objectives. The key objectives for preannouncing new products include: to evoke customer curiosity and interest, to gain favourable word of mouth, to seek customer feedback, to preempt competitors, to reduce customer adoption resistance, etc. In a sense, these preannouncing objectives confirm a dual role of new product preannouncement in new product development as prelaunch marketing communications and as one form of competitive signalling.

The findings concur with the concept of marketing hype, emphasising the support of multiple stakeholders for the success of new products (Wind and Mahajan 1987). The research demonstrates that new product preannouncements focus not only

on customers but also on other key stakeholders such as opinion leaders and channel members. The positive effect of media favourability on preannouncing effectiveness also confirms the notion that the media are critical in generating marketing hype that facilitates the adoption of new products (Theoharrakis, Wong, and Powell 1996; Wind and Mahajan 1987). The creation of marketing hype demands a prelaunch marketing programme aimed at all key stakeholders to create a conducive and supportive environment for new product introduction. New product preannouncements, as prelaunch marketing communications, can function to hold the stakeholders together for generating marketing hype. Moreover, the measurement of the effectiveness of new product preannouncement is consistent with a stakeholder approach to strategic performance measurement (Atkinson, Waterhouse, and Wells 1997). The focus on multiple stakeholders, to some extent, reflects the importance of acquiring, retaining, and developing the relationships with the stakeholders. Given the centrality of communication in relationship marketing (Duncan and Moriarty 1998), new product preannouncement may play a unique role in building and shaping the complex relationships between firms and their stakeholders

In the proposed model of this research, situational factors trigger the motives for preannouncing new products, while the inherent risks, such as product cannibalisation, competitive cueing, or failure in delivery, attenuate or overshadow the driving force. The motives, intertwined with the inherent risks, constitute the rationale underlying every managerial decision on new product preannouncement. Following the rationale, the model links the strategic behaviours in preannouncing

new products with their antecedents and effectiveness. The empirical results of testing the model show certain contradiction to the proposed hypotheses based on the study of Eliashberg and Robertson (1988) that investigated the reasons for and against the likelihood of firms' preannouncing their new products. An implication of the seemingly conflicting findings is that the rationale for how firms preannounce their new products may be somewhat different from the rationale for why firms preannounce their new products. For instance, Eliashberg and Robertson (1988) find a negative relationship between the combativeness of the product category competitors and the likelihood of preannouncing behaviour. In contrast, the results of the research indicate that firms in a market characterised by high competitive hostility tend to preannounce their new products frequently and with abundant messages. A possible explanation is that either the firms do not fear the risk of competitive cueing after deciding to preannounce or this risk is overwhelmed by the motives for obtaining competitive advantages. Either way, the risk of competitive cueing in the decision about how to preannounce is not as influential as it is in the decision of whether to preannounce or not.

8.4 Managerial Implications

This research investigates the management of new product preannouncement under different conditions shaped by brand/product, firm, and market characteristics. The research findings may offer several guidelines for managers to develop strategies for preannouncing new products. First, firms that intend to preannounce their new

products must appreciate that preannouncing strategies vary according to different conditions. Preannouncing strategy herein refers to a particular combination of the behaviours of new product preannouncement (cf. Mohr and Nevin 1990). Second, firms can enhance preannouncing effectiveness by conducting early and frequent preannouncements or by keeping preannounced messages consistent with one another. Another approach to achieving higher effectiveness is to obtain favourable coverage of the media. Finally, whether preannouncing strategies are appropriate depends on internal and external environments facing these firms. To make right decisions on developing appropriate preannouncing strategies, the firms must accurately evaluate the characteristics of brand/product, firm, and market and, simultaneously, take into account the impacts of different preannouncing behaviours on the effectiveness. For instance, if a firm affiliates its new product with a strong brand, the firm may as well preannounce the product with clear and truthful product-related messages. In so doing, it will not run a risk of diluting or damaging the parent brand's image. However, the preannouncement of a radical product tends to entail less message uniformity. In the circumstances, firms must try to minimise inconsistency among various preannounced messages so that the achievement of preannouncing effectiveness will not be substantially deterred.

Lilly and Walters (1997) highlight the urgent need for measuring the effectiveness of new product preannouncement. The evaluation of the preannouncing effectiveness may help firms to improve their performance in new product preannouncement. This research proposes one approach to measuring the

effectiveness of new product preannouncement in terms of three criteria: (1) the achievement of various objectives for preannouncing new products, weighted by the relative importance of the objectives; (2) the performance relative to previous preannouncements; (3) the performance relative to the competitors' preannouncements. Firms that engage in new product preannouncements should have clearly defined objectives for the preannouncements and the information about their competitors' prelaunch communications, so they can measure how their preannouncements perform relative to the objectives, their previous efforts, and their competitors' performance.

Another managerial implication of the research is that marketing communications should be integrated before new product introduction. New product preannouncement represents one of the major efforts devoted to the marketing of a new product in advance of its actual market launch (Gatignon and Robertson 1991). The research recognises that new product preannouncement represents an important prelaunch activity in the marketing of new products. As such, the preannouncement should not be treated haphazardly. Instead, new product preannouncement should be carefully planned and implemented in accordance with other post-launch marketing communications such as advertising, sales promotion, and publicity. In this sense, new product preannouncement acts to warm up or trigger all marketing communications for the upcoming product.

This research explores the phenomenon of preannouncing new products from a perspective of product management. As a vast majority of new products launched

nowadays are actually line or brand extensions (Aaker 1991; Kotler 1994), the research takes into account the context in which a new product may be preannounced when its parent brand and/or other products in the same product line are present. Naturally, the planning and implementation of new product preannouncement involves managing the coexistence of new and old products (Guiltinan 1993). The use of new product preannouncement can be of great value in product line or mix management. For instance, new product preannouncement, with its feedback-seeking function, may be employed to investigate the synergy in marketing communications for jointly promoting a new product and the existing products. Managers can establish a sales forecasting model for both new and existing products by utilising the preannouncement to detect potential cannibalisation effects, competitive activities, and marketing hype for the introduction of the new product. Likewise, the market information collected by new product preannouncement can be used to develop strategies for product replacement (see Saunders and Jobber 1994).

8.5 Limitations of the Current Research

This research inevitably has several inherent limitations. The first limitation of the research concerns the use of single key informant per unit of analysis. The second research limitation involves the measurement issues with respect to the four single-index scales for the constructs of firm size, preannouncing timing, preannouncing frequency, and message content. The third research limitation is concerned with the questionnaire used in this research. The elimination of the two key constructs, market

turbulence and visibility, leads to the fourth research limitation. The use of single summated scales to represent the constructs in the estimation of structural relationships constitutes the fifth research limitation. The last limitation of the research is associated with the cross-validation of the model. These limitations will be discussed more fully in turn.

As decisions on preannouncing new products usually involve a group of top managers, a single manager's responses may not be able to fully account for the aggregate decision-making behaviour. To the extent that the managers disagree with one another, the construct measures acquired based on one manager's perception represent, at best, approximations of the factual information (cf. Kohli 1989). However, the use of information from only a single source to generalise about an organisation's situation may be misleading. Such information is selective, if not biased, owing to the informant's position or other characteristics or his/her way of using and weighting the information when making judgments (Bowman and Ambrosini 1997; Philips 1981). While the key informant approach is a widespread practice, the use of single-informant data in this research is still a major problem. The data themselves might be inherently inadequate or unreliable even though the strict criteria have been met for selecting key informants from the responding companies.

Although multi-item measurement of constructs is strongly preferred (Baumgartner and Homburg 1996), this research adopts four single-index measures, resulting in the inability to estimate the measurement errors of the four corresponding constructs (Bagozzi, Yi, and Philips 1991). In order to take the measurement errors

into account in the data analysis, four a priori values were used to represent the reliabilities and then fixed in the structural equation modelling analysis. Nevertheless, the inability to empirically assess the measurement errors of the four constructs may result in confounding influences on the parameter estimation of structural equations and therefore yield misleading conclusions (Bagozzi 1991; Campbell and Fiske 1959).

The low response rate (19.7%) in the research may be attributable to the length and complexity of this questionnaire. Such a low response rate, to some extent, attenuates the generalisability of the research findings although it is still within the acceptable range. Moreover, a relatively small value of the sample size relative to the number of estimated parameters might lead to a possible overfitting problem (Hulland, Chow, and Lam 1996). In the process of construct validation, nine scale-reversed measurement items, out of thirteen, were eliminated. The proportion (69%) is extremely high, indicating that the measures using reverse statements were more likely to suffer from measurement errors than do the measures using positive statements. This phenomenon, in a sense, confirms Churchill and Peter's (1984) comment that reverse scoring reduces scale reliability because respondents are likely to get confused with the changes of wording or anchors from item to item.

By eliminating two construct with substantial measurement errors, this research tried to assure the accuracy of the structural relationships among the remaining constructs even at the price of model comprehensiveness. Nevertheless, specification error, i.e., the omission of one or more key predictive variables in a theoretically

based model, may become a major concern. The assessment of the importance of other variables may be biased due to the omission of significant variables (Hair, Anderson, Tatham, and Black 1995). A trade-off had to be made in the face of such a dilemma. Given the exploratory nature of this research, it is considered more important to have precise structural relationships among the constructs of interest rather than to retain a relatively comprehensive model encompassing some unreliable measures and confounding relationships.

In the estimation of structural equations, each of the constructs with multi-item measures were represented by a summated score. Although widely used and practically justifiable, this approach, in a sense, downgrades the full structural equation model to the level of a path model. However, such a trade-off is inevitable when taking into account the total number of measures and the complexity of the model (cf. Li and Calantone1998; MacKenzie, Podsakoff, and Ahearne 1998).

A structural equation model calibrated by one set of data is normally suggested to be validated by another data set, especially when the final model is obtained from specification search (MacCallum 1986; MacCallum, Rosnowski, and Necowitz 1992). This cross-validation method is employed to identify a model with the greatest predictive validity in future samples from the same population rather than a model only best reproducing a specific sample structure (Cudeck and Browne 1983; Homburg 1991). The low number of the returned questionnaires prevents this research from following this procedure. The usable questionnaires in the research were too few to be split into two subsamples: the calibration sample for parameter

estimation and the holdout sample for model validation. The lack of model cross-validation represents one major limitation of the research.

8.6 Directions for Future Research

On the basis of this exploratory research, several research directions can be identified that may be worth pursuing. First, it would be useful to investigate further various new product preannouncing behaviours. For instance, efforts may be made to explore different facets of preannounced message like visual and behavioural messages. Other noteworthy message-related constructs include message favourability (Burke, Cho, DeSarbo, and Mahajan 1990) and message objectivity (Darley and Smith 1993). Since the research failed to obtain a reliable measure of visibility, future research should strive to capture this construct and incorporate it into the empirical model. In a similar vein, the focus of research may be directed toward the distinctive roles played by mass media and specialised communication channels, such as trade shows or trade journals, in new product preannouncement. In addition, more emphasis should be placed on the potential interactive effects among the relevant behavioural constructs of new product preannouncement.

The research may be extended to investigate different forms of new product preannouncement as well. As multi-product firms often develop and launch a variety of new products at the same time, they are more likely to preannounce their products simultaneously (Rabino and Moore 1989). It is therefore important to distinguish the differences between single product and "bundling" (multiple product)

preannouncements. Another research direction is to examine new product preannouncement along the time dimension. New product preannouncement may exhibit different patterns over time. In the advertising context, five possible patterns can be observed in terms of advertising schedule: blitz, pulsing, chattering, even, or pulsing/maintenance (Mahajan and Muller 1986). Similarly, different preannouncing modes may be identified by studying the behaviours of new product preannouncement from a longitudinal perspective.

Future research may try to cross-validate the model of this research by using data from different sources, especially from the United States, since most of the extant studies in new preannouncing behaviour were conducted in the U.S. (e.g., Eliashberg and Robertson 1988; Lilly and Walters 1997; Rabino and Moore 1989). Robertson, Eliashberg, and Rymon (1995) indicate that the message receiving behaviours of new product preannouncement between the U.K. and the U.S. managers are similar. It seems interesting to conduct a comparative study on the behavioural similarities or differences in new product preannouncement between these two countries from a preannouncer perspective. Advertising research (e.g., Weinberger and Spotts 1989) has shown that the two countries differ in the amount of advertising message content. As such, it is possible that certain differences may exist in firms' preannouncing new products across the two countries.

Another area that deserves attention is other forms of preannouncing, such as price preannouncements, channel of distribution preannouncements, or new market entry preannouncements (Eliashberg and Robertson 1988). The logic of building up

the model in this research may be applied to the development of models for depicting these preannouncements. In other words, each of the preannouncements can be explored in light of situational factors, preannouncing behaviours, and preannouncing effectiveness within its specific context. From a theoretical viewpoint, a more general preannouncement model may be established by integrating the model of new product preannouncement with the preannouncement models of different forms.

8.7 Conclusion

This research explores the phenomenon of preannouncing new products from a managerial perspective. The theme of the research reflects the fact that strategic behaviours of preannouncing new products vary depending on the characteristics of product, firm, and market. The findings of the research lead to an integrative model that can guide the management of new preannouncement to achieve higher effectiveness. Moreover, it is shown that new product preannouncement may act as an important prelaunch activity in the process of new product development or introduction. In a sense, this research represents a further step toward dealing with a managerial challenge--to preannounce the right messages to the right audiences through the right communication channels at the right time.

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APPENDICES

APPENDIX A

Survey Questionnaire

Instructions to Respondent

In this questionnaire, new product preannouncement refers to a communication process in which a company intentionally releases messages about a new product to target audiences outside the company in advance of its market launch. For the following questions, please give your answers that reflect the conditions your company faced and the decisions it made **at the time it preannounced a new product**. If it happens that your company has never preannounced any new product, please start answering the questions from Section E on page 8.

Section A: Product and Brand

1. Please select the most recent product your company preannounced. (If multiple products were preannounced simultaneously, then please choose one of them and mention it below.)
   Product Name :_____
   Brand Name :_____

2. To your company, this new product was
   ____a product improvement ____a line extension
   ____a new product line ____a new-to-the-world innovation

3. Do you agree with the following statements about the preannounced new product? Please circle the appropriate number on a scale where 1 = Strongly Disagree and 7 = Strongly Agree.

		Strongly Disagree						Strongly Agree
a.	It required a major learning effort by customers.	1	2	3	4	5	6	7
b.	It took a long time before customers could understand its full advantages.	1	2	3	4	5	6	7
c.	The product concept was difficult for customers to evaluate or understand	1	2	3	4	5	6	7
d.	Customers were always engaged in advance planning for adopting it.	1	2	3	4	5	6	7
e.	It involved high switching costs for the customer	1	2	3	4	5	6	7
f.	The product was one of the most complex products we had ever introduced into the market	1	2	3	4	5	6	7

4. Please rate the extent to which you agree (or disagree) with the following statements which describe the brand. Please circle the appropriate number.

		Strongly Disagree						Strongly Agree
a.	People tended to mention the brand name first when thinking of the product category	1	2	3	4	5	6	7

b.	People always stated that they had heard of the brand when they were given its name	1	2	3	4	5	6	7
c.	The level of quality customers associated with the brand was very high	1	2	3	4	5	6	7
d.	Customers regarded the brand as a very low-value brand	1	2	3	4	5	6	7
e.	Customers were highly willing to use the brand	1	2	3	4	5	6	7
f.	The brand had a loyal customer base	1	2	3	4	5	6	7

5. What is the product category (or industry) in which the focal new product belongs?

_____

6. To what extent do you agree (or disagree) with the following statements about your company in this product category? Please circle the appropriate number.

		Strongly Disagree						Strongly Agree
a.	We had one of the highest market shares in this product category	1	2	3	4	5	6	7
b.	We always followed larger competitors' market moves	1	2	3	4	5	6	7
c.	Our competitors were relatively weaker in terms of competitive power in the product category	1	2	3	4	5	6	7
d.	We enjoyed a leading position in the product category	1	2	3	4	5	6	7

Section B: Execution of the Preannouncement

7. Please indicate the extent to which the following audiences were regarded by your company as important target audiences of the preannouncement. Please circle the appropriate number on a scale 1 to 7 with 1 = Not at All Important and 7 = Extremely Important.

		Not at All Important						**Extremely Important**
a.	Customers	1	2	3	4	5	6	7
b.	Suppliers	1	2	3	4	5	6	7
c.	Experts/Opinion Leaders	1	2	3	4	5	6	7
d.	Competitors	1	2	3	4	5	6	7
e.	Shareholders/Financial Community	1	2	3	4	5	6	7
f.	Channel Members (e.g., Distributors)	1	2	3	4	5	6	7
g.	Producers of Complementary Products	1	2	3	4	5	6	7

8. When was the focal product preannounced?

_____

9. What was the duration between the first preannouncement of the new product and its formal market introduction?

_____Day(s)/_____Week(s)/____Month(s)/____Year(s)

10. For the following communication channels, please rate the importance of each channel in delivering the preannouncements along a scale where 1 represents Not at All Important and 7 represents Extremely Important. Next, please describe how often your company deliberately disseminated messages related to the focal new product via the channels during the preannouncing period. Circle the appropriate number on the scale ranging from 1 (Extremely Infrequently) to 7 (Extremely Frequently).

		Not at All Important						**Extremely Important**	**Extremely Infrequently**						**Extremely Frequently**
a.	Press Announcements	1	2	3	4	5	6	7	1	2	3	4	5	6	7
b.	Trade Publications	1	2	3	4	5	6	7	1	2	3	4	5	6	7
c.	Trade Shows and Conferences	1	2	3	4	5	6	7	1	2	3	4	5	6	7
d.	Business Meetings	1	2	3	4	5	6	7	1	2	3	4	5	6	7
e.	Speeches	1	2	3	4	5	6	7	1	2	3	4	5	6	7
f.	Word of Mouth	1	2	3	4	5	6	7	1	2	3	4	5	6	7
g.	Memorandums	1	2	3	4	5	6	7	1	2	3	4	5	6	7
h.	Annual Report	1	2	3	4	5	6	7	1	2	3	4	5	6	7
i.	Magazines	1	2	3	4	5	6	7	1	2	3	4	5	6	7
j.	Newspaper	1	2	3	4	5	6	7	1	2	3	4	5	6	7
k.	Direct Mail	1	2	3	4	5	6	7	1	2	3	4	5	6	7
l.	Internet	1	2	3	4	5	6	7	1	2	3	4	5	6	7

11. Overall, how often do you think your company intentionally disseminated the new product-related messages during the preannouncing period? Please circle the appropriate number on the scale below.

Extremely Infrequently						Extremely Frequently
1	2	3	4	5	6	7

12. Now, please indicate the extent to which each of the following statements describes the communication channels used for preannouncing the new product. Circle the appropriate response, where 1 = Strongly Disagree and 7 = Strongly Agree.

		Strongly Disagree						Strongly Agree
a.	We preannounced the product in the communication channels aimed at a broad audience	1	2	3	4	5	6	7
b.	We used informal communication channels for the preannouncement	1	2	3	4	5	6	7

c.	We sent the preannounced messages via media which were more visible in the marketplace	1	2	3	4	5	6	7
d.	The communication channels chosen were industry-specific	1	2	3	4	5	6	7

13. Please indicate the extent to which each of the following statements describes the media to which your company disseminated the preannouncements. Circle the appropriate response.

		Strongly Disagree						Strongly Agree
a.	The preannouncement generated major media coverage	1	2	3	4	5	6	7
b.	The preannouncement attracted little attention from the media	1	2	3	4	5	6	7
c.	Most of the media highlighted the preannouncement	1	2	3	4	5	6	7
d.	The media emphasis on our preannouncement was relatively greater than on our competitors'	1	2	3	4	5	6	7
e.	The media made supportive remarks about the focal product	1	2	3	4	5	6	7
f.	The media covered our new product preannouncement favourably	1	2	3	4	5	6	7
g.	The media had a high opinion of the preannounced product	1	2	3	4	5	6	7
h.	The media coverage was consistent with what we wanted to present	1	2	3	4	5	6	7

14. In terms of content, how would you describe the amount of messages released in the new product preannouncements. Circle the appropriate number, where 1 = Extremely Limited and 7 = Extremely Abundant.

Extremely Limited						Extremely Abundant
1	2	3	4	5	6	7

15. Below, please indicate the degree to which the preannouncements communicated the following cues about the new product (1 = Never Conveyed and 7 = Fully Conveyed).

		Never Conveyed						Fully Conveyed
a.	Price or Value	1	2	3	4	5	6	7
b.	Quality	1	2	3	4	5	6	7
c.	Performance	1	2	3	4	5	6	7
d.	Features or Components	1	2	3	4	5	6	7
e.	Availability	1	2	3	4	5	6	7
f.	Special Offer	1	2	3	4	5	6	7
g.	Brand Name	1	2	3	4	5	6	7

h.	Package or Shape	1	2	3	4	5	6	7
i.	Guarantee or Warrantees	1	2	3	4	5	6	7
j.	Research Findings	1	2	3	4	5	6	7
k.	New Ideas	1	2	3	4	5	6	7
l.	Launch Plan	1	2	3	4	5	6	7

16. Please indicate the extent to which you agree (or disagree) with the following statements concerning the preannounced messages. Please circle the appropriate number.

		Strongly Disagree						Strongly Agree
a.	The preannouncements we made were kept ambiguous	1	2	3	4	5	6	7
b.	We communicated the messages in a precise way	1	2	3	4	5	6	7
c.	We avoided vague expression in the preannouncements	1	2	3	4	5	6	7
d.	The preannouncements were stated as specifically as possible	1	2	3	4	5	6	7
e.	Explicit information was conveyed in the preannouncements	1	2	3	4	5	6	7
f.	The preannounced messages were consistent with one another from beginning to end	1	2	3	4	5	6	7
g.	We sent dissimilar messages in different preannouncements	1	2	3	4	5	6	7
h.	We varied messages when they were conveyed to different audiences	1	2	3	4	5	6	7
i.	In the meantime, the messages preannounced in different markets were uniform	1	2	3	4	5	6	7
j.	Late preannouncements did not contradict early preannouncements	1	2	3	4	5	6	7

17. Again, please indicate the extent to which you agree (or disagree) on the following statements about the preannounced messages. Circle the appropriate number.

		Strongly Disagree						Strongly Agree
a.	We conveyed messages that reflected the facts about the new product	1	2	3	4	5	6	7
b.	Bluffs were very commonly used in the messages contained in the preannouncements	1	2	3	4	5	6	7
c.	The preannouncements were truthful indications of our future plan or actions	1	2	3	4	5	6	7
d.	The preannouncements contained false messages	1	2	3	4	5	6	7

e. All the preannounced messages were verifiable 1 2 3 4 5 6 7

Section C: Objectives and Evaluation

18. Please tick (✓), as appropriate, the objectives of preannouncing the new product. Next, please allocate 100 points among these selected objectives in terms of their relative importance. Please make sure you only allocate points to those items you have selected by placing a "✓" in the left column and ensuring that the total adds up to 100. For each selected objective, please also rate the extent to which your company was successful in attaining it. Circle the appropriate number on a scale 1 to 7 with 1 = Did not at All Attain Objectives and 7 = Completely Attained Objectives.

	Objectives of Preannouncing (Tick Objectives as Appropriate)	**Importance**	**Did Not at All Attain Objectives**						**Completely Attained Objectives**
___	Evoke Curiosity and Interest	_____	1	2	3	4	5	6	7
___	Enhance Customer Learning	_____	1	2	3	4	5	6	7
___	Reduce Customer Adoption Resistance	_____	1	2	3	4	5	6	7
___	Lower Customer Switching Costs	_____	1	2	3	4	5	6	7
___	Encourage Purchase Delay for Currently Available Products	_____	1	2	3	4	5	6	7
___	Enhance Your Company's Image	_____	1	2	3	4	5	6	7
___	Pre-empt Competitors	_____	1	2	3	4	5	6	7
___	Seek Competitive Norms of Conduct	_____	1	2	3	4	5	6	7
___	Counterattack Competitive Moves	_____	1	2	3	4	5	6	7
___	Obtain Support of Distributors	_____	1	2	3	4	5	6	7
___	Stimulate the Generation of Complementary Products	_____	1	2	3	4	5	6	7
___	Gain Favourable Word of Mouth	_____	1	2	3	4	5	6	7
___	Impress Current and Potential Shareholders	_____	1	2	3	4	5	6	7
___	Seek Customers' Feedback	_____	1	2	3	4	5	6	7
___	Observe Competitors' Reaction	_____	1	2	3	4	5	6	7
___	Seek Feedback from Those Other than Customers and Competitors	_____	1	2	3	4	5	6	7
	Total:	**100**							

19. Overall, to what extent do you regard the preannouncement as successful (or unsuccessful) relative to the company's previous new product preannouncements?

Extremely Unsuccessful						Extremely Successful
1	2	3	4	5	6	7

20. Again, to what extent do you regard the preannouncement as successful (or unsuccessful) relative to your key competitors' new product preannouncements?

Extremely Unsuccessful						Extremely Successful
1	2	3	4	5	6	7

Section D: Market

21. Please evaluate each of the following statements with respect to the characteristics of customers in the market where the focal new product was launched. Please rate on a scale with 1= Strongly Disagree and 7 = Strongly Agree.

		Strongly Disagree						Strongly Agree
a.	For this business, customers' product preferences changed quite a bit over time.	1	2	3	4	5	6	7
b.	Our customers tended to look for new products all the time.	1	2	3	4	5	6	7
c.	New customers tended to have product-related needs that are different from those of our existing customers.	1	2	3	4	5	6	7
d.	We actually catered to many customers that we have served in the past.	1	2	3	4	5	6	7
e.	Demand was fairly easy to forecast in this market	1	2	3	4	5	6	7
f.	The changes in customer preference over time were difficult to predict in this market	1	2	3	4	5	6	7

22. Next, to what extent do you agree (or disagree) with the following statements about the competition in the market of the focal new product?

		Strongly Disagree						Strongly Agree
a.	Competition in the market was cut-throat.	1	2	3	4	5	6	7
b.	Competitors were always able to match their opponents' market attacks readily.	1	2	3	4	5	6	7
c.	Competition existed in a variety of aspects, e.g., pricing, quality, service, etc.	1	2	3	4	5	6	7
d.	Price competition was a hallmark of the market.	1	2	3	4	5	6	7

e. There were frequent product introductions or modifications	1	2	3	4	5	6	7

23. Again, with respect to the new product, please indicate the extent to which you agree (or disagree) with the following statements concerning the technology used in its market.

	Strongly Disagree						Strongly Agree
a. The technology in our industry was changing rapidly.	1	2	3	4	5	6	7
b. Technological changes provided big opportunities in our industry.	1	2	3	4	5	6	7
c. It was very difficult to forecast where the technology in our industry would be in the next 2 to 3 years.	1	2	3	4	5	6	7
d. A large number of new product ideas had come from technological breakthroughs in our industry.	1	2	3	4	5	6	7
e. Technological developments in our industry were only minor.	1	2	3	4	5	6	7

24. Still with respect to the market, please rate the extent to which you agree (or disagree) with each of the following statements about its characteristics.

	Strongly Disagree						Strongly Agree
a. A potential customer's adoption of a new product was influenced by the number of current users of the existing or compatible products	1	2	3	4	5	6	7
b. The risks of adopting a product for non-users decreased as the number of its current adopters increased.	1	2	3	4	5	6	7
c. Compatible designs were particularly desirable in the industry	1	2	3	4	5	6	7
d. In the market, customers tended to stick to incumbent technologies	1	2	3	4	5	6	7
e. A product in the market became more valuable as the number of adopters of the product increased.	1	2	3	4	5	6	7

Section E: Company

25. Please indicate the number of full-time employees in your company, the turnover, and expenditure on advertising in the year covering the product preannouncement.
Number of Full-time Employees: _____
Annual Sales Turnover (approximately): £_____

Expenditure on Advertising (approximately): £_____

26. Now, we would like to ask you some questions about the managerial practices of your company. Please indicate the extent to which you agree (or disagree) with the following statements by rating along a scale with 1 indicating that your company did not engage in the practice at all and 7 indicating that it engaged in the practice to a great extent.

		Not at All						To a Great Extent
a.	Business objectives were driven by customer satisfaction	1	2	3	4	5	6	7
b.	Commitment to serving customer needs was monitored	1	2	3	4	5	6	7
c.	Our competitive strategies were based on understanding customer needs	1	2	3	4	5	6	7
d.	Strategies were driven by our beliefs about creating customer value	1	2	3	4	5	6	7
e.	Customer satisfaction was frequently and systematically measured	1	2	3	4	5	6	7
f.	Close attention was given to after-sales service	1	2	3	4	5	6	7
g.	Our salespeople shared information on competitors' strategies	1	2	3	4	5	6	7
h.	We responded quickly to competitors' actions	1	2	3	4	5	6	7
i.	Top Managers regularly discussed competitors' strengths and weaknesses	1	2	3	4	5	6	7
j.	We targeted opportunities which led to competitive advantage	1	2	3	4	5	6	7
k.	Managers from different functional departments regularly visited customers	1	2	3	4	5	6	7
l.	Information about customer experiences was always communicated and shared among different functional departments	1	2	3	4	5	6	7
m.	Business functions were integrated to serve target market needs	1	2	3	4	5	6	7
n.	Managers understood how everyone could contribute to creating customer value	1	2	3	4	5	6	7

Section F: Basic Information

27. Please indicate your current position in your company: _____

28. Please indicate your position in your company at the time of the focal new product preannouncement: _____

29. Please indicate how long you have been working in your company: _____

30. How well were you informed about your firm's new product preannouncement? Circle the appropriate number on a scale ranging from not at all informed to extremely well-informed.

Not at All Informed						Extremely Well-Informed
1	2	3	4	5	6	7

31. Please circle the appropriate number to reflect to what extent you were involved in the decision-making of preannouncing the new product.

Absolutely Not Involved						Highly Involved
1	2	3	4	5	6	7

32. Please describe the extent to which the following personnel of your company influence the decision of preannouncing a new product?

		Not at All						To a Great Extent
a.	President/CEO/Managing Director	1	2	3	4	5	6	7
b.	Vice-president of Marketing/ Sales	1	2	3	4	5	6	7
c.	Marketing/Product Manager	1	2	3	4	5	6	7
d.	Project Manager	1	2	3	4	5	6	7
e	Other (please specify) _____	1	2	3	4	5	6	7

END OF QUESTIONNAIRE

Thank you very much for your cooperation!

Please return the questionnaire in the attached freepost envelope.
(No stamp is necessary for the delivery.)

APPENDIX B

Cover Letter

«Name»
«Address_Line_1»
«Address_Line_2»
«Address_Line_3»
«Address_Line_4»

22 February, 1999

Dear «Name»:

We are currently conducting an extensive study into the phenomenon of new product preannouncement--a communication used to intentionally convey messages about new products to target individuals in the marketplace prior to product launch. Under the aegis of the **Product Development and Management Association (PDMA)**, this study is intended to increase our understanding of the nature of new product preannouncing behaviour in selected industries in the United Kingdom.

Our preliminary investigation suggests that, although many companies across a variety of industries in the U.K. have frequently preannounced their new products, little is understood about how the companies conduct and evaluate new product preannouncements. The findings of the study should provide companies with a tool for analysing, selecting, and executing new product preannouncing strategies in order to maximise marketing communication impact to facilitate new product launch.

We wonder if you will be able to help us by participating in the study. If so, we would be grateful if you could answer the questions in the enclosed questionnaire and return it in the freepost reply envelope. We guarantee that all answers are confidential. If you think you are not the person most appropriate for answering these questions, please pass the questionnaire on to a colleague who you regard as more suitable for this task.

To make this survey accurate and meaningful, please ensure that the questionnaire is completed fully. Please return the completed questionnaire at your earliest convenience. In return for your participation, we will provide your company with a summary of the results. Thank you very much for your cooperation. If you need any further information, please feel free to contact us.

Yours sincerely,

Veronica Wong
Reader
(01203 524508)

Chien-Wei Chen
Doctoral Researcher
(01203 572833)

Marketing and Strategic Management
Warwick Business School
University of Warwick

APPENDIX C

Overview of Structural Equation Modelling

Introduction

Structural equation modelling, viewed as a synthesis of techniques of econometrics and psychometrics, subsumes a variety of linear models like regression, path, and factor analyses as special cases (Hughes, Price, and Marrs 1986). Unlike any other single statistical technique in social and behavioural sciences, the structural equation modelling approach is distinguished by its comprehensiveness and flexibility in the sense that it provides a means of testing multiple and interdependent relationships and that it integrates measurement concerns with the modelling of structural relationships by incorporating both latent variables and observed indicators into a single model (Cagli 1984; Hayduk 1987; Hoyle 1995). A general structural equation model prescribes relationships among latent variables and between the latent variable and the observed indicators used to operationally define them. In other words, structural equation models estimate separate, but interdependent, multiple regression equations for a set of latent variables simultaneously and allow for the explicit modelling and estimation of errors in measurement (Hoyle 1995; Hughes, Price, and Marrs 1986).

An appropriate use of structural equation modelling techniques hinges on the research objectives (Hair, Anderson, Tatham, and Black 1995). Most often, structural equation modelling is intended to perform in a confirmatory fashion. A model requires formal specification to be estimated and tested in that the modelling provides no default model specification and places relatively few limits on specifying relationships among variables. As such, it is important that the hypothesised

relationships carefully constructed based on theory and the data are thoroughly examined before conducting structural equation modelling (Hoyle 1995).

Basic Composition and Mathematical Form

A general structural equation model comprises two submodels: a measurement model and a structural model. The measurement model define relationships between observed and latent (unobserved) variables. That is, the measurement model provides the link between measurement indicators and the underlying constructs the indicators are intended to measure (Byrne 1998). The pattern in which each indicator loads on a particular factor (construct) is specified a priori. On the other hand, the structural model defines the relationships among latent variables. The single model delineates how each latent variable directly or indirectly influences other latent variables.

The relationships among latent variables can be either directional or nondirectional. Each latent variable in the structural model can be classified as either exogenous or endogenous. An exogenous latent variable always acts as a predictor or a "cause" for other variables but never as an "effect." Exogenous variables typically exert directional influences on one or more endogenous variables. An endogenous variable refers to the one that is directly caused or affected by another variable in the model. Endogenous variables may impose directional influences on some other variables as well (Hayduk 1987; MacCallum 1995).

The general structural equation model can be expressed, using the Greek notation in LISREL, in terms of a set of three matrix equations (Joreskog and Sorbom 1996):

The structural model:

$\eta = B\eta + \Gamma\xi + \zeta,$

where η is an $m \times 1$ random vector of endogenous variables; ξ is $n \times 1$ random vector of exogenous variables; ζ is an $m \times 1$ vector of equation errors in the structural relationship between η and ξ; B is an $m \times m$ matrix of coefficients of the η-variables in the structural relationship; Γ is an $m \times n$ matrix of coefficients of the ξ-variables in the structural relationship.

The measurement model for the y-variables:

$y = \Lambda_y\eta + \varepsilon,$

where y is a $p \times 1$ vector of observed response variables; Λ_y is a $p \times m$ matrix of coefficients of the regression of y on η; ε is a $p \times 1$ vector of measurement errors in y.

The measurement model for the x-variables:

$x = \Lambda_x\xi + \delta,$

where x is a $q \times 1$ vector of observed predictor variables; is a $q \times n$ matrix of coefficients of the regression of x on ξ; δ is a $q \times 1$ vector of measurement errors in x.

In the structural equation model, four minimal assumptions are presumed to hold: (1) ε is uncorrelated with η, (2) δ is uncorrelated with ξ, (3) ζ is uncorrelated

with ξ, and (4) ζ, ε, and δ are mutually uncorrelated. Besides B, Γ, Λ_y, and Λ_x, four other parameter matrices, Φ, Ψ, Θ_ε, and Θ_δ, are accounted for by the population covariance matrix (Chou and Bentler 1995; MacCallum 1986). Of them, Φ is the variance/covariance matrix of exogenous variables and Ψ, Θ_ε, and Θ_δ are variance/covariance matrices of error variables respectively for the structural model, the all-y measurement model, and the all-x measurement model.

A confirmatory factor analysis model is a special case of the general structural equation model. The confirmatory factor analysis model focuses on the way in which observed measurement indicators are mapped to their specified factors, making use of only the measurement model component of the general model (Hoyle 1995). Customarily, the all-x measurement model is used for the analysis. Like the general model, the confirmatory factor analysis model can be expressed in a mathematical form as follows:

$$x = \Lambda_x \xi + \delta,$$

where x is a $q \times 1$ vector of n sets of observed measurement indicators; ξ is an $n \times 1$ vector of the underlying factors; Λ_x is a $q \times n$ matrix of regression coefficients (factor loadings) prescribing the indicators to the underlying factors; δ is a $q \times 1$ vector of error terms of the indicators.

Various restrictions can be imposed on the parameters for theoretical or identification reasons. A common and simplest situation is to hypothesise only one single factor in a model, when n is set to be equal to one (Steenkamp and van Trijp 1991).

Application of Structural Equation Modelling

Structural equation modelling mainly involves the use of observed data, in a form of covariance or correlation matrix, to fit a specific model so that values of the model parameters can be found that will approximately reproduce the observed data (Chou & Bentler 1995; MacCallum 1995). In other words, the primary task of modelling is to search for a solution wherein the input matrix can be reconstructed from the parameter estimates of a particular model in such a fashion that the correspondence between the reconstructed and original matrices are as close as possible. Another important aspect of modelling concerns the choice of a model that represents the original data better, given more than one model specified. A variety of modelling approaches and statistical methods have been developed for appropriate applications of structural equation modelling (Bentler 1980; Faulbaum and Bentler 1994). They are briefly introduced as follows.

One-Step Approach vs. Tow-Step Approach

In a structural equation model analysis, there are two distinct approaches to acquiring the ultimate outcome, i.e., the assessment of a set of structural relationships. A one-step approach is intended to estimate the measurement model and structural model simultaneously. This approach, in a sense, grasps the real advantages of structural equation modelling (Hulland, Chow, and Lam 1006). Nevertheless, it is considered the best approach only if the structural equation model has both strong

theoretical rationale and highly reliable measures (Hair, Anderson, Tatham, and Black 1995).

Anderson and Gerbing (1988) advocate a two-step approach in which the measurement model is separately estimated prior to the simultaneous estimation of the structural model. In so doing, the interaction between the measurement and structural models can be avoided so as to obtain more reliable measures. Although the justification of the two-step approach is still under debate from both conceptual and empirical perspectives (e.g., Fornell and Yi 1992a; Fornell and Yi 1992b; Anderson and Gerbing 1992), this approach enjoys comparative advantages over the one-step approach, especially when measures are not highly reliable or theory is only tentative (Hair, Anderson, Tatham, and Black 1995).

Three Modelling Strategies

The application of structural equation modelling can be executed through three different strategies: confirmatory modelling strategy, model comparison strategy, and model development strategy (Byrne 1998; Joreskog and Sorbom 1993; Hair, Anderson, Tatham, and Black, 1995). The confirmatory modelling strategy directly specifies a single model and assesses its significance in terms of model fit criteria. A model is considered a plausible model only if it yields interpretable parameter estimates and a well model fit. This strategy, though apparently looking like the most rigorous application, is actually not the most stringent test of a proposed model because the model, once accepted, can only be confirmed as one of several possible acceptable models rather than as the proven one. Moreover, it is not a very feasible

strategy owing to the lack of flexibility or opportunity to address a negative outcome (MacCallum 1995).

A more rigorous test can be achieved in a model comparison strategy, wherein a proposed model is compared with a set of alternative a priori models that are identified to represent different hypothetical relationships. These alternative models may be derived from different competing theoretical positions or established based on conflicting research findings (Hoyle 1995). Anderson and Gerbing (1988) suggest employing a series of hierarchically nested models and sequential chi-square difference tests to assess the relative differences between models. Nested models are the models that possess the same constructs but differ in the number or types of specified structural relationships. In other words, two models are nested if they both contain the same constructs whereas the set of free parameters in one model is a subset of the free parameters in the other. Model comparison is statistical in nature. It involves the specification of two nested models and the calculation of the difference in chi-square statistics between the models (Hoyle 1995).

Model development (or model generating) strategy often applies in a scenario in which a theoretically derived model has been rejected due to its poor fit to the sample data and thus needs to be respecified in an exploratory manner (Byrne 1998). In many applications, theory can provide only a starting point for the development of a model. Most often, the model has to be modified, by relocating the sources of misfit and being re-estimated, to find a revised model that describes the data better. An ill-fitted model can be respecified through either freeing the formerly fixed parameters or fixing the formerly free parameters (Hoyle 1995). The ultimate

objective of model modification is to find a model that is both substantively meaningful and statistically well-fitting. Although heavily used in practice, the model development strategy has often been accused of as data-driven (Byrne 1998).

Steps in Structural Equation Modelling

A general seven-step process for the application of structural equation modelling is proposed by Hair, Anderson, Tatham, and Black (1995). In a sequence, the seven steps starts from developing a theoretically based model, followed by constructing a path diagram of causal relationships. The third step is to convert the path diagram into a set of structural equations and measurement equations. Subsequently, the input matrix type has to be chosen and the proposed model is estimated using the matrix. The ensuing two steps involves assessing the identification of the model equations and evaluating the results for goodness-of-fit. Afterwards, model modification, if theoretically justified, can be performed to improve the fit of model to the sample data.

A thorough understanding of theoretical underpinnings for a structural equation model is too important to be overemphasised (Byrne 1998). Structural equation models posit causal relationships among variables, explicating the effects of changes in one variable on another variable. The existence of causality lies in strong theoretical justification rather than in analytical methods (Bagozzi 1980). Specification error occurs when one or more major predictive variables are omitted in a causal model. The inclusion of variables in a model, nevertheless, should be guided by theory and keep a balance between model comprehensiveness and parsimony,

given the practical limitations of modelling (Hair, Anderson, Tatham, and Black 1995).

A path diagram is one explicit way to depict a set of causal relationships. The keystone of a path diagram is constructs, theoretically based concepts, among which the causal relationships are defined. The first assumption underlying path diagrams is that all causal relationships, existing or nonexisting, are indicated based on theoretical grounds. The second assumption is the linearity of causal relationships. Special treatments are necessary to deal with nonlinear relationships in structural equation modelling. In general, a path diagram can be used to represent an originally specified model, a tested model with significant parameter estimates, and a re-estimated or modified model (Hoyle 1995).

After a path diagram is portrayed, the theoretical model can be specified in terms of a series of equations. Model specification stands for a formal statistical statement with respect to the structural relationships (Hoyle 1995). Typically, parameters are specified as either fixed or free in a structural equation model. Fixed parameters, usually fixed at zero, are not estimated from the data, while free parameters, hypothesised as nonzero, are estimated from the data. The parameters define the structural model, the measurement model, and the matrices that indicate hypothesised correlations among constructs or variables.

Measurement errors can be taken into account by incorporating reliabilities of the measures into the model. Reliabilities can be either estimated by specifying the factor loading matrices or fixed at a priori values. The likely occasions for fixing the reliabilities are when the measurement scales are single-item or pre-established with a

priori reliabilities or when the two-step modelling approach is employed (Hair, Anderson, Tatham, and Black 1995). Normally, only the correlations among exogenous constructs are specified, indicating a joint influence on the endogenous variables. The correlations among the endogenous variables, on the contrary, should be avoided in that they may result in confounding interpretations.

Unlike other multivariate methods, structural equation modelling uses either variance/covariance or correlation matrix as the input data. Despite the legitimacy of both input forms, the use of correlation matrix associated with maximum likelihood (or generalised least squares) estimation method tends to result in inaccurate standard errors (Cudeck 1989; Joreskog and Sorbom 1996). It is therefore recommended that structural equation modelling be conducted using covariance matrix (Baumgartner and Homburg 1996).

A major concern with the use of structural equation modelling is sample size. A small sample is more likely to yield unreliable results (Chou and Bentler 1995), whereas large sample size may lead the maximum likelihood method to be too sensitive, making all the goodness-of-fit measures indicate poor fit. Although there is no standard sample size, an acceptably minimum size to ensure the use of maximum likelihood estimation is 100. A relatively small but practically reasonable sample size of 200 is suggested as being the "critical sample size" (Hoelter 1983).

A logical step after model specification is model estimation, involving statistical tests of the adequacy of a model. Typically, different estimation methods yield somewhat different results for parameter estimates and goodness-of-fit tests. Among various estimation methods, maximum likelihood and generalised least

squares are two preferred ones for their ability to generate reliable statistical results. Both estimators are iterative methods. They engage in a series of attempts to obtain parameter estimates that imply a matrix like the observed one. An estimation procedure ends with a converged solution that summarises the degree of correspondence between the implied and observed matrices (Hoyle 1995). The two estimation methods are derived under the assumption of multivariate normality, which is usually violated in practice (Chou & Bentler 1995). However, extensive research (e.g., Anderson and Gerbing 1984; Hu, Bentler, and Kano, 1992; Muthen and Kaplan 1985) has found the relative robustness of maximum likelihood method against the violation of multinormality. In contrast, the estimates derived from the generalised least squares method are likely to be negatively biased when the data are not normally distributed (Joreskog and Goldberger 1972).

Statistical identification is a key issue of model estimation. It concerns whether the information from the input data, the observed variances and covariances, corresponds to the information to be estimated, i.e., the free parameters (Hoyle 1995). In short, identification involves the issues with respect to obtaining a unique solution for the parameters specified in the model (Chou and Bentler 1995). One necessary condition for identifiability is an overidentified model, in which there are more data points than unknown parameters or, at least, a just-identified model, where there exists a one-to-one correspondence between the data and the parameters (Byrne 1998; MacCallum 1995). For any model to be estimated, it must be either just-identified or overidentified. Overidentified models possess some degrees of freedom with which the amount of sampling and measurement errors can be assessed and, therefore, they

provide better estimates of the causal relationships. Nonetheless, there is no simple approach to verifying that every free parameter is identified, especially if structural equation models become more complex (Bollen and Joreskog 1985).

Identification problems refer to the inability of the proposed model to generate unique estimates for respective free parameters. In reality, the problems are more often caused by the characteristics of data rather than the characteristics of the theoretical model (Hoyle 1995). The possible symptoms showing identification problems include (1) abnormally large standard errors for one or more parameters, (2) the inability to invert the information matrix, (3) unreasonable or impossible estimates like negative error variances, and (4) extremely high correlations (± .90 or greater) among the estimated coefficients. Hayduk (1987) recommends a four-step process to cope with the identification problems. It starts with building a theoretical model with the minimum number of coefficients which can be justified. Once identification problems occur, remedies can be pursued in the following sequence: (1) fix the measurement error variances of constructs if possible; (2) fix any structural coefficients that are reliably known; (3) eliminate troublesome variables.

Model evaluation begins with examining the extent to which the data and proposed models meet the assumptions of structural equation modelling. The application of structural equation modelling assumes independent observations, random sampling of respondents, and the linearity of all relationships, and, particularly, multivariate normality (Bentler and Chou 1987; Hoyle 1995). As maximum likelihood and generalised least squares statistics both assume multivariate normality of the data, a violation of this assumption may result in biased standard

error estimates, inflated t-ratios, and erroneous chi-square statistics (Hu and Bentler 1995; Hulland, Chow, and Lam 1996). Hence, an assessment of normality before the application of structural equation modelling is very important (West, Finch, and Curran 1995). This task can be performed using statistical programmes such as PRELIS. Once the basic assumptions have been satisfied at acceptable levels, the results should be inspected for offending estimates, i.e., estimated coefficients that violate accepted ranges or indicate problems in other areas of the model.

When both the assumptions and offending estimates have been examined, the next step is to assess the overall model fit in terms of goodness-of-fit measures. The goodness-of-fit statistics are intended to measure the extent to which the predicted matrix derived from the proposed model matches the observed input matrix. Besides the achievement of absolute model fit, a model should be assessed for its parsimony, i.e., the achievement of model fit relative to the number of estimated coefficient. It is important that a model should be established to have as many degrees of freedom as possible, ceteris paribus.

In simultaneous estimation of measurement and structural models, the measurement of each construct should be assessed for reliability and unidimensionality, once the overall model fit has been evaluated. The factor loadings of the constructs on their corresponding indicators also have to be inspected and the indicators with nonsignificant coefficients should be eliminated or transformed for a better fit with the constructs (Hair, Anderson, Tatham, and Black 1995). After evaluating measurement model fit, the next step is to examine the structural model through assessing the significance of the estimated coefficients and the overall

coefficient of determination (R^2). Like multivariate regression, structural equation modelling may suffer from multicollinearity. Hence, the correlations among constructs have to be inspected and, once large values appear, remedies like the elimination of constructs or the reformulation of causal relationships should be performed lest the accuracy of the estimated results are attenuated.

A converged but unacceptable solution for a model can be further amended by model modification. In so doing, the goodness-of-fit and theoretical explanation may both be improved. Standardised residuals and modification indices are two indicators on which a series of model modifications are based (Anderson and Gerbing 1988; Steenkamp and van Trijp 1991). Normally, the values of standardised residuals between two variables greater than ± 2.58 are deemed as significant, indicating substantial prediction errors. Modification indices are used to assess each non-estimated relationship. The values of modification indices approximate the reduction in chi-square statistics assuming that the corresponding coefficients are estimated. A model can be adjusted through freeing parameters that formerly were fixed or fixing parameters that formerly were free (Hoyle 1995). Hayduk (1987) recommend that model modification be nine-tenth theory driven and only one-tenth data driven. In general, model modification, e.g., by adding or deleting any parameter, should be conducted by simultaneously taking into account theoretical rationale, statistical criteria, and model parsimony (Byrne 1998).

Goodness-of-fit Indices

A variety of goodness-of-fit measures have been developed to assess the fit of model. They are usually used in combination. In general, the goodness-of-fit measures can be classified into three types: (1) absolute fit measures, (2) incremental fit measures, or (3) parsimonious fit measures (Hu and Bentler 1995; Hair, Anderson, Tatham, and Black 1995). The absolute fit measures assess the overall fit of a priori model to the data, i.e., how well the model reproduces the sample data. The incremental fit measures contrast the fit of the proposed model with the fit of some baseline model, normally the null model (Kelloway 1995). Take parsimony into account, the parsimonious fit measures assess the goodness-of-fit of the model relative to the number of estimated coefficients. In a sense, the parsimonious measures are to diagnose the overfitting and determine the model fit achieved by each estimated coefficient.

Among the absolute fit measures, the chi-square statistic, goodness-of-fit index (GFI), root mean square residual (RMR), and root mean square error of approximation (RMSEA) were adopted in this research as the criteria for evaluating model fit. As for incremental fit indices, the adjusted goodness-of-fit index (AGFI), normed fit index (NFI), non-normed fit index (NNFI), and comparative fit index (CFI) were chosen. The parsimonious goodness-of-fit index (PGFI) and parsimonious normed fit index (PNFI) were two parsimonious fit measures used for evaluating the goodness-of-fit of the model.

The chi-square measure differs from the other adjunct fit indices in the value magnitude indicating model acceptability (Hoyle 1995). Given the same degrees of

freedom, a smaller χ^2 value indicates a relatively better model fit and a zero value represents a perfect fit. Unlike the chi-square measure, the other adjunct fit indices are not statistics and, hence, cannot be used to conduct formal statistical tests of model fit. They serve only as global indices of model adequacy and there are no definite critical values for their application. Moreover, these adjunct indices indeed represent "goodness-of-fit" measures. A larger value of each of these indices corresponds to a better model fit.

Chi-square Statistic

Chi-square statistic is the most commonly used goodness-of-fit measure. It is derived directly from the value of the fitting function (Hoyle 1995). The chi-square statistic (χ^2) should be regarded as a measure that assess the magnitude of the discrepancy between the observed and fitted covariance matrices, rather than as a statistic for testing any given hypothesis (Hu and Bentler 1995; Joreskog and Sorbom 1996). In fact, it should be referred to as a badness-of-fit measure inasmuch as a large χ^2-value, relative to degrees of freedom, corresponds to a bad model fit. Cutoff values such as $p > .05$ or $p > .10$ are usually adopted as indicative of failing to reject the null hypothesis of satisfactory model fit (Hulland, Chow, and Lam 1996). When a large χ^2 value is obtained, the fit may be examined by an inspection of the standardised residuals and modification indices. If a model is modified by introducing new parameters, then a significantly large drop in χ^2, relative to the difference in degrees of freedom, is indicative of a real improvement in model fit.

A caveat should be noted for the use of the chi-square statistic since it is heavily influenced by sample size (Brannick 1995; Cagli 1984) and very sensitive to the violation from multivariate normality (Joreskog and Sorbom 1996). Hair, Anderson, Tatham, and Black (1995) suggest a range of sample size between 100 to 200 is appropriate for the application of chi-square in the significance test. Many alternative goodness-of-fit indices have been developed with a view to overcome the problems faced in the use of chi-square statistic (Bentler 1980; Brannick 1995).

Goodness-of-Fit Index

The goodness-of-fit index is used to represent the relative amount of variances and covariances jointly explained by the model (Marsh, Balla, and McDonald 1988). It measures the squared residuals from prediction compared with the actual data, without the adjustment for the degrees of freedom. It is a nonstatistical measure with values spreading from 0 (poor fit) to 1.0 (perfect fit). Higher values indicate better fit. However, no absolute threshold levels for acceptability have been established.

Root Mean Square Residual

The root mean square residual (RMR) is defined as the square root of the mean of the squared residuals, i.e., an average of the residuals between the observed and fitted matrices (Hair, Anderson, Tatham, and Black 1995; Joreskog and Sorbom 1996). The RMR is more suitable for the use of correlation matrix, rather than covariance matrix (Byrne 1998), because it is hard to interpret when the residuals are relative to the observed variances and covariances. A value of zero for the RMR

indicates a perfect fit, while no threshold level has been established. Normally, a value below .05 suggests a well-fitting model and a value from .05 to .10 can be deemed as adequate fit. A more conservative benchmark is appropriate in that the RMR, given its nature as an average of all residuals, is likely to be influence by extreme outliers.

Root Mean Square Error of Approximation

Another measure attempting to correct for the sensitivity of the chi-square statistic to sample size is the root mean square error of approximation (RMSEA). Like the RMR, the RMSEA assesses the discrepancy between the observed and fitted matrices per degree of freedom, which makes it sensitive to the number of estimated parameters in the model (Byrne 1998). Its difference from the RMR, however, lies in its measurement of discrepancy based on the population covariance matrix (Faulbaum and Bentler 1994). In other words, the RMSEA is representative of the goodness-of-fit that could be expected if the model were estimated in the population rather than in the sample. A value of RMSEA below .05 indicates a close fit, while a value ranging from .05 to .08. indicates an acceptable or mediocre fit (Baumgartner and Homburg 1996).

Adjusted Goodness-of-Fit Index

The adjusted goodness-of-fit index represents an extension of the GFI. Nevertheless, the AGFI is different from the GFI in that the former is adjusted by the ratio of the degrees of freedom for the proposed model to the degrees of freedom for

the null model. In other words, the AGFI incorporates penalty functions for the inclusion of parameters to be estimated (Byrne 1998; Marsha, Balla, and McDonald 1988). Both GFI and AGFI range from 0.0 to 1.0, but it is theoretically possible for them to be negative. A recommended acceptance level for the AGFI is a value greater than or equal to .90.

Normed Fit Index

The normed fit index measures the proportion of total covariance among observed variables explained by the proposed model, with the null model as a baseline model (Bentler and Bonnet 1980). Since the null model does not provide an acceptable fit to the sample data, the calculation of an NFI would help to reach an conclusion concerning the adequacy of the proposed model simply based on comparing its fit with the fit of the null model (Kelloway 1995). It is one of the popular measures with a range of value from zero (no fit at all) to one (a perfect fit). As with other indices, there is no absolute cutoff point indicating an acceptable level of fit for the NFI. A commonly recommended value is .90 or greater. One weakness of the NFI is that it shows a tendency to underestimate model fit in small samples (Byrne 1998).

Non-Normed Fit Index

Non-normed fit index, or named as Tucker-Lewis index (Tucker and Lewis 1973), is an incremental fit measure the expresses model fit per degree of freedom. Like the AGFI, the NNFI takes the complexity of the proposed model into account by

comparing it with the null model (Byrne 1998). It is called "nonnormed" because it needs not be confined within a 0-1 range (Bentler and Bonett 1980). The NNFI is relatively independent of sample size (Steenkamp and van Trijp 1991). A model with a NNFI value of .90 is deemed as acceptable.

Comparative Fit Index

Bentler (1990) proposes the comparative fit index to revise the NFI by taking sample size into account. The comparative fit index can be regarded as a measure of the comparative reduction of the degree of misspecification (Faulbaum and Bentler 1994). Values for the CFI lie between zero and one, with larger values indicating higher levels of goodness-of-fit. A model with a CFI value greater than .90 is normally regarded as an acceptable fit.

Parsimonious Goodness-of-Fit Index

Unlike the AGFI, the parsimonious goodness-of-fit modifies the GFI in a different fashion. As the first parsimony-based index, the PGFI adjusts the GFI by incorporating the evaluation of model complexity, i.e., the number of estimated parameters, into the assessment of overall model fit (Byrne 1998). Parsimony is defined as achieving higher degrees of fit per degree of freedom used. In other words, the PGFI integrates the goodness-of-fit and the model parsimony into one single index. Values of the PGFI range from zero and one, with higher values indicating better model fit.

Parsimonious Normed Fit Index

The parsimonious normed fit index is a modification of the NFI. The PNFI also takes into account the number of degrees of freedom to assess model fit. High values for the PNFI indicate better model fit. The PNFI is mainly used to compare alternative model with different degrees of freedom. There are no recommended level of acceptable fit. However, the values of .06 to .09 for the difference in the PNFIs between two model are usually regarded as substantially large to be indicative of model differences (Williams and Hazer 1986).

Unlike other multivariate statistical methods, structural equation modelling does not have any straightforward criteria for model evaluation. It is therefore recommended that one or more measures from each class are adopted to evaluate structural equation models (Hoyle 1995). The evaluation of model fit is a relative process for which no absolute criteria can be employed. Since many factors such as sample size and model complexity affect the magnitude of the fit indices (Hu and Bentler 1995), a combination of various goodness-of-fit measures may help to bring in a consensus as to the acceptability of the proposed model.